PSYCHOMETRIC CONSTRUCTION AND VALIDATION OF A MEASURE OF POSITIVE AGING

by

Clark Slagle

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The dissertation of **Clark Slagle**

has been approved by the following supervisory committee members:

Robert Hill	, Chair	**9/28/11** Date Approved
Frances Harris	, Member	**9/28/11** Date Approved
Lauren Weitzman	, Member	**9/28/11** Date Approved
Janiece Pompa	, Member	**9/28/11** Date Approved
Amy Bergerson	, Member	**9/28/11** Date Approved

and by **Elaine Clark**, Chair of the Department of **Educational Psychology**

and by Charles A. Wight, Dean of The Graduate School.

ABSTRACT

Gerontological research has expanded as human life expectancy has increased. Constructs have been created to capture the aging process and appear in the research literature as pathological aging, normal aging, usual aging, successful aging, and positive aging.

Pathological aging described aging as a disease or aging in the presence of disease. Normal aging contrasts with pathological aging by describing aging in the absence of disease. Usual aging reframed the concept of passive acceptance of decline as normal; although it may be usual, it does not have to be the normal trajectory of aging. Successful aging characterizes agers who are in excellent physical health, have full cognitive functioning, and are actively engaged in life. Successful agers engage in behavior that decreases the likelihood of disease and subthreshold symptoms of disease. Selective optimization with compensation (SOC) was introduced as a means to address inevitable decline.

Positive aging built on SOC by identifying cognitive and affective characteristics that can be engaged to address decline. Positive aging is described as an ability to mobilize one's resources, to respond flexibly to the challenges of aging, to maintain a sense of optimism, and to make affirmative life choices. Positive aging theory argues that these characteristics are obtainable by any person regardless of physical and cognitive health or level of engagement with life.

This research study undertook the development and validation of a positive aging measure. The Positive Aging Measure (PAM) was developed by sampling (*n*=162) older adults (*M*=68.7 years of age) on the PAM and data provided strong convergent and discriminant validity, internal consistency and test-retest reliability for the measure.

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CHAPTER I

INTRODUCTION

The current average life expectancy in the United States is 77.9 years (CDC, Life Expectancy, 2010). This represents a substantial increase in life expectancy in the last century and in conjunction with the post-World War II population bulge or the "*Baby Boom Generation,"* has created a larger proportion of older persons living in the United States. More specifically, the number of adults age 45 and older are growing at a rate of 31.5% annually while adults ages 18-44 are growing at a rate of 0.6%. The higher growth rate in older adults has resulted in adults age 65 and older currently making up 16% of the overall United States' population (Age composition, 2010). Predictive data indicate that in 2030, more than 20% of the people in the United States will be 65 or older, whereas in 1930, persons 65 and older accounted for only 5.4% of the total population (CDC, 2010). According to United Nations (2010) data, increases in older populations are expected worldwide. By 2030, 55 nations predict that people 65 and older will account for 20% or more of their total population.

Regardless of the increases in lifespan, especially across the last century, disease and decline are inevitable and are commonly associated with the aging population. Research in aging has explored a number of medical and psychological strategies to help older persons adapt to age-related decline (Baltes & Baltes, 1990; Rowe & Kahn, 1987).

However, decline and disease still occur, as they are inevitable experiences among persons who are living into later life, especially among those who are living beyond average life expectancy. For example, Alzheimer's disease ranks as the fourth leading cause of death in the United States and adults 85 years and older are estimated to have Alzheimer's disease at a prevalence rate of 50% (Laforce & McLean, 2005). Alzheimer's disease represents a physical and cognitive state that is characterized by rapid deterioration of functionality (Anderson et al., 2009). As the percentage of elders in the population increases, a greater percentage of people will be facing disease and disability in spite of their own personal efforts or social supports employed to ameliorate decline. To elucidate further the nature of aging and the role of decline as part of the aging process, the next section describes the evolution of concepts that have been proffered by researchers and scholars in gerontology to characterize the aging process.

Constructs Descriptive of Aging

Different terms and constructs have evolved to try to capture the psychological, physical, cognitive, and emotional facets of human aging (Baltes, 1997; Hill, 2005; Palmore, 1970; Rowe & Kahn, 1987). This evolving terminology has been confusing at times because an agreement on what would be acceptable in a unitary theory of aging has been difficult to isolate (Salthouse, 2006); instead, this body of literature has shifted over time as conceptualizations of aging have evolved from advancing research on this topic. These evolving constructs are explored in the following sections.

Pathological Aging

Initially, aging was viewed as equivalent to disease; that is early definitions of growing older focused on disease as the source of age-related decline (Rowe & Kahn, 1987). The term *pathological aging* was used in the early research literature to characterize adults in later life based on a disease model linking aging to chronic disease states. Pathological aging fit this model, as both aging and chronic disease are associated with diminished function over time, and are progressive processes that damage or diminish the physical system (e.g., old age frailty). Whether aging was simply a kind of chronic disease was vigorously debated in the 1970s and early 1980s (Rowe & Kahn, 1998).

Pathological aging, in short, is growing old while incurring disease or disability. Baltes and Baltes (1990) described pathological aging as "…an aging process determined by medical etiology and syndromes of illness. A classic example is dementia of the Alzheimer type" (p. 8). Early in the history of aging research, Korenchevsky and the Oxford Gerontological Research Group (1949) identified a need for distinguishing between senescence, or growing old in the absence of disease, and pathological aging, stating:

> It is obviously impossible to discover normal features and establish normal standards of physiological senescence unless normal individuals are available: they should possess the best hereditary characters, should live a normal span of life in normal conditions of nutrition and environment, and should be free from any disease that might leave after-effects on their tissues and organs. (p. 66)

Research at this time and into the next decades was mostly limited to older adults in institutionalized settings with lower levels of functioning and a higher prevalence of

disease and disability, thus reinforcing a focus on pathological aging and the pairing of aging and disease (Busse & Maddox, 1985).

Alzheimer's disease is a relevant example of pathological aging given by Baltes and Baltes (1990) and an obvious one, as the number of people with Alzheimer's disease has increased both in the United States and the world due to increased life expectancy. The prevalence of Alzheimer's disease in the population has an impact even on the psychological well-being of older adults who do not have the disease. For example, polling data indicates that United States' citizens report a greater fear of Alzheimer's disease than of any other age-related disease (Anderson et al., 2009). As pathological aging research contributed to researchers' and practitioners' knowledge of diseases that impact older adults, this provided the possibility of developing behavioral interventions that could be implemented to positively impact the aging process. For example, practitioners working with older adults recommend interventions, such as daily walking or memory games, to delay the onset of dementia. (This focus on older adults' ability to engage in interventions to positively impact their wellbeing will be further discussed in the section on Successful Aging.)

With pathological aging research focusing on more impaired older adults, it provided important research on the clinical needs of older adults with disease and disability. However, this research offered little understanding of a less pathologically focused aging process and a more typical lifespan process (Busse & Maddox, 1985). The difficulty in understanding aging without the confound of disease continued, and researchers worked throughout the following decades to disentangle disease from senescence.

In summary, pathological aging explained aging in the presence of disease and was useful in describing older adults who fit this model. However, long-term longitudinal studies of aging emerged (see Seattle Longitudinal Study, Baltimore Longitudinal Study of Aging, Kansas City Study, and Duke Longitudinal Studies), and helped researchers begin the disentanglement process between pathological aging and normal aging.

Normal Aging

From this debate on aging and disease, the term *normal aging* emerged in the research literature to acknowledge that aging is not always pathological; that is, aging does not directly cause organ damage, but aging is associated with the greater likelihood of disease and disease causes organ damage (Palmore, 1970). More specifically "the concept of *normal* aging was used initially to connote natural developmental processes in later life as distinct from pathological processes which are more likely to be attributable to disease rather than aging" (Busse & Maddox, 1985, p.5). Thus, the term normal aging was an attempt to recognize that aging can occur without disease or disability, and at the same time, normal aging recognized that in the end aging would be linked to loss. Baltes and Baltes (1990) define normal aging as: "… aging without biological or mental pathology. It thus concerns the aging process that is dominant within a society for persons who are not suffering from a manifest illness" (p.7). More succinctly, normal aging can be thought of as aging either without the presence of disease or with the presence of disease at a sub-threshold level in terms of impairing a person's ability to function (Hill, 2011).

The Duke Longitudinal Study began in 1955 and continued collecting data until 1976 from 270 community participants. A second, cross-sequential study began in 1968 with 502 participants, also ending in 1976. These studies allowed for a greater understanding and differentiation between senescence and pathological aging as the large samples across time captured older adults who were living without disease and with minimal impairment from disease. The Duke longitudinal studies helped reveal the cohort effects not readily identifiable in cross-sectional studies (known as the age/period/cohort or APC problem; Busse & Maddox, 1985). The study introduced the term "normal aging," and researchers titled the results of the study *Normal aging: Reports from the Duke longitudinal study* (Palmore, 1970). In essence, by following a larger cohort of participants over time that were not institutionalized, a new term of aging was able to be established that recognized the progression of the life course in absence of disease.

Results from the Duke studies and other longitudinal research established a view of senescence among normal agers. For instance, differences in intelligence were no longer viewed as inevitable loss due to aging, but as a cohort effect related to differences in completion of higher levels of education because younger cohorts had increased access to higher education as compared to older cohorts (Palmore, 1970; Schaie, 1990). By controlling for cohort effects, cognitive differences could be more accurately assessed. Further, specific cognitive changes such as slowing of processing speed could be determined to be a normal impact of aging, allowing for aging processes to be separated from disease and not be identified as necessarily immediate precursors to severe impairment. For normal aging, this means that changes due to aging do not necessarily

have an immediate detrimental impact on overall cognitive functioning or overall functioning.

However, normal aging failed to identify how external forces contributed to the effects of aging on older adults. For example, someone prone to heart disease may work in an office most of the day. The external or environmental force of career and workplace may increase the risk of heart disease and not be recognized as a risk factor. This was viewed as the "normal" occurrence of aging. A normal ager does not actively engage in alternative behaviors, such as stress reduction techniques, to mitigate the normal course of aging and risk of heart disease due to genetic and external factors. Although the normal ager may not meet the threshold of symptoms identified with heart disease, the process of normal aging may result in physical (or cognitive) changes at a sub-threshold level, such as increased blood pressure. These normal agers are at-risk for becoming pathological agers, i.e., developing heart disease.

Rowe and Kahn (1987) suggest that normal aging occurs when external forces increase the impact of genetic predispositions rather than counteract these internal forces. Metaphorically, this idea could be viewed as floating down the river of genetic and environmental factors affecting aging. The elder hopes for the best but does not actively swim to avoid the likely dangers of sand bars and low-hanging branches of potential disease and negative life choices, which likely will impact how she or he ages. Rowe and Kahn (1987) found normalizing the idea of aging towards pathology to be problematic because of its assumed connection between aging and pathology. However, usual aging provides an alternative reframing of normal aging.

Usual Aging

In response to Palmore's (1970) generic use of normal aging as nondisease loss, Rowe and Kahn (1987) attempted to refine this assumption. They suggested that normal aging was associated with a broad spectrum of age-related trajectories, some of which did not include decline. Alternatively, they introduced aging in new terms that included *usual aging* and *successful aging*. Usual aging characterizes older adults that currently do not exhibit symptoms of disease but may exhibit some physical or cognitive functional changes as a result of the growing old process; in other words, usual agers are not pathological agers.

By expanding conceptualizations of aging, Rowe and Kahn shifted the focus on aging away from older adults being burdened by disease and eventual death to a focus on the ways in which older adults persist in adequate levels of functioning and even positively impact their experience of aging. This allowed for consideration of preventative interventions to address decline in the framework of usual and successful aging (not just interventions for elders with disease; see Successful Aging section). Usual agers are not actively engaged in using psychosocial resources or preventative measures to counter the impact of aging or the impact of environmental factors experienced in an industrial society; thus, usual agers are considered to be at greater risk for crossing a threshold of disease in the future. As a result, they may have sub-threshold changes that will impact future health or quality of life, but those changes are not recognized as disease.

For example, older adults often have a reduced ability to metabolize sugar and are on the threshold of developing diabetes. Based on these thresholds, aging adults may be

classified as usual or as pathological. These thresholds, decided by governmental health organizations, are somewhat arbitrary and do not necessarily recognize subthreshold risks (Rowe & Kahn, 1998). One purpose of describing aging as usual was to alter the assumption that being on the threshold of disease had to be considered normal. The view of "normal as harmless" (p. 53) had been inexorably altered (Rowe & Kahn, 1987). A more positive conceptualization of what normative aging could be was needed.

Successful Aging

In contrast to usual aging, Rowe and Kahn coined the term successful aging to describe older adults as engaging internal resources to counteract the detrimental effects of forces such as genetics and environment on age-related decline. Rowe and Kahn (1998) defined successful aging as "low risk of disease and disease-related disability; high mental and physical functioning; and active engagement with life" (p. 38). They hypothesized that successful agers were in the minority in the general population, but the fact that they existed suggested: (1) that not all aging is negative, and (2) that people can do something about the vicissitudes of growing old. By expanding conceptualizations of aging, Rowe and Kahn shifted the focus on aging away from older adults being burdened by disease and eventual death to a focus on the ways in which older adults are adapting to deal with and (at times) counteract the negative aspects of growing old on one's mind and body.

Successful agers, then, are able to actively engage in behaviors that help shift them away from the threshold of disease. This paradigm change dramatically altered how society thought about aging and decline. Decline may be usual but it does not have

to be normal. Some intrapersonal agency exists, is accessible, and is able to impact the rate and effects of decline.

For example, older adults, especially women, may have low bone density as a result of the usual progression of senescence. This low bone density may be a sub-threshold indication of the pathological onset of osteoporosis. The potential onset and effects of osteoporosis can be remediated with changes in nutrition and weight-bearing exercise (Rowe & Kahn, 1998). Older adults who engage in behavioral interventions to prevent decline or to restore functioning are defined as successful agers. Alternatively, usual agers as defined by Rowe and Kahn do not engage in remedial behaviors. Behavioral interventions offer the possibility of elders' agency in the aging process; some elders may actively confront risks associated with increased decline and impairment and other elders may more passively experience the impact of risks related to decline and impairment.

The MacArthur Foundation Longitudinal Twin Study was a critical study in quantifying genetic and environmental risk factors of aging (Rowe & Kahn, 1998). This study used the Swedish National Twin Registry to study 25,000 sets of twins. Researchers created a "heritability index" (p. 60) that indexed genetic and environmental (nature and nurture) factors for a variety of diseases and cognitive loss. For example, researchers found that two thirds of the risk for obesity can be attributed to genetics. Rowe and Kahn assert that our genetic make-up may predispose us (or not) towards obesity, yet one third of the risk of obesity remains controllable. This research made it possible to identify behavioral differences between usual agers and successful agers.

Successful agers take advantage of this controllable variability in order to reduce the risk of disease and move away from subthreshold physiological indicators of disease.

The study found that cognitive function depends half on genetics and half on environment. While explicit memory and processing speed inevitably decline with age, they do not decline enough to impair function in a typical aging trajectory. The MacArthur Study found that successful agers were able to impact their functioning by socializing, talking, reading, and playing card games. Additionally, education, self-efficacy, mentally stimulating work, physical activity, and lung function were all found to be protective factors against cognitive decline. The Seattle Longitudinal Study of Aging reported similar findings (Schaie, 1983). So, although genetic make-up impacts cognitive functioning by approximately 50%, older adults have the ability to successfully alter this decline rather than lose functioning in the "usual" manner.

The Rowe and Kahn (1987) model of successful aging emphasized behavioral change or interventions and created a new awareness of aging, new attitudes surrounding aging, and new possibilities available to older adults. A stereotyped view of an 80-year-old person sitting on her porch in her rocking chair expanded to include new views of aging, such as competing in senior games or going back to college. Hope, optimism and possibility were infused into the zeitgeist of aging. Some behavioral changes resulted in healthy outcomes due to increased awareness and aging self-efficacy. Campaigns to increase nutrient intake and weight-bearing exercise to enhance bone density and prevent osteoporosis have been successful. Other interventions and outcomes such as increasing nutritional and fitness awareness have not been as successful, as evidenced by increasing obesity rates.

Since successful aging has an operationalized and measurable definition–"low risk of disease and disease-related disability; high mental and physical functioning; and active engagement with life"–this definition limits what kinds of older adults may be considered successful or even usual agers. More specifically, an introverted person who chooses to not socialize is not considered a successful ager because this person is seen as failing to implement behavioral changes in social engagement that would positively impact the aging process and decrease risk for depression, as an example. While the intent of Rowe and Kahn's work and well-defined terms is not to exclude older adults from the possibility of successful aging, the conceptualization does lend itself to a more dichotomous means of understanding success in the aging process.

Further, using the term "successful" then calls into question what is "unsuccessful" aging. Holstein and Minkler (2003) argued that any modifier/adjective is inherently flawed due to the conceptual meaning attached by a particular culture's linguistic usage. Defining the modifier "successful" specifically, and non-judgmentally, cannot undo the socially constructed meaning of adjectives used in other contexts. Thus, agers who do not meet Rowe and Kahn's (1987; 1998) criteria for successful aging would be classified as unsuccessful, implying that their lack of physical health, cognitive function, or disengagement with life constitutes a failure.

This sense of failure, although not an intent of Rowe and Kahn, has been found as an impact of employing the term "successful" to conceptualize aging. For example, Hilton et al. (2009) studied successful aging from the perspective of family caregivers. Based on their findings, they made the following caution about the use of successful aging as a descriptive term or the only way of thinking about aging—"We also

recommend that practitioners consider the implications of using the term *successful aging* when working with older populations. The use of the term may produce anxiety in caregivers and older adults who feel their experiences with loss and disability are somehow unsuccessful and their own fault" (p.47). Further caution has been expressed elsewhere in the research literature of a nonsystems view where elders have the primary responsibility of being successful agers and can be blamed or praised for their failure or success (Scheidt, Humphries, & Yorgason, 1999; Tornstam, 1992).

Many researchers (Phelan, 2004; Hilton, Kopera-Frye, & Krave, 2009; Livingston, Cooper, Woods, Milne, & Katona, 2008) suggested that in order to create a more inclusive construct, studies must incorporate a broader perspective of heterogeneity in aging than the construct of successful aging allows. Strawbridge, Wallhagen and Cohen (2002) found that there is a significant disparity between self-reported successful aging and successful aging as defined by Rowe and Kahn (1987). The researchers used data from the Alameda County Study, a longitudinal study beginning in 1965, to assess how participants described their own aging and how this self-report compared to an operationalized measure of successful aging. A battery of measures was administered to 867 participants aged 65-99 years, ranging from a dichotomous assessment of depression to a continuous measure of optimism. Self-report of successful aging was measured with a single statement: *"I am aging successfully (or aging well)."* Results indicated that 50.3% of participants reported themselves as successful agers, whereas only 18.8% met Rowe and Kahn's criteria of successful aging. Participants had a different view of what aging successfully means compared to the operationalized definition of successful aging. Further, their own self-reported severity of symptoms and distress was inconsistent with

their self-report of successful aging, suggesting that older adults' self-assessment of successful aging is not strictly tied to the presence of symptoms.

In similar research, Mclaughlin (2008) analyzed the data of approximately 10,000 participants per cohort (years 1998, 2000, 2002, and 2004), over 65 years of age. Mclaughlin used a rubric to evaluate if criteria for successful aging were met, which included activities of daily living (ADLs), absence of five chronic diseases, physical and cognitive functioning, and engagement. The results indicated that fewer than 10% of older adults in their sample met criteria for successful aging as defined by Rowe and Kahn (1987).

Although measuring successful aging has obvious value and relevance both clinically and academically, there are limitations in successful aging's ability to capture a more heterogeneous experience of aging. Therefore, it seems another model of aging is needed to address older adults who possess some deficit or decline and their ability to effectively navigate these challenges. Further, the work by Strawbridge, et al. (2002) suggested that there are internal processes within older adults that have an impact on their experience of aging.

Baltes and Baltes (1990) also agreed that successful aging behavioral changes could greatly impact the health and well-being of older adults. However, they asserted that decline is ultimately inevitable, and thus proposed a process that considered how older adults can adapt to decline during the aging process. They termed the process "selective optimization with compensation" and proposed it as a model for adaptation to decline, which is the subject of the next section.

Selective Optimization with Compensation

Even among older adults who can be considered *very* successful agers and engage in preventative health care programs, the onset of disease, decline, and death are ultimately inevitable (Baltes & Baltes, 1990). Fries' (1990) research on morbidity, and the morbidity curve, illustrates this inevitable trajectory towards death. The morbidity curve has a slope that has increasingly flattened, especially in the last hundred years as human life expectancy has increased. Societal changes, medical technology and service delivery improvements, as well as successful aging behavioral modifications are helping older adults to live longer. However, as the morbidity curve aptly illustrates, older adults ultimately face mortality.

Baltes and Baltes (1990) proposed that older adults with age-related decline can cope with these discontinuities by employing selective optimization with compensation (SOC). This triarchic model uses selection, optimization and compensation to provide adaptive coping strategies in dealing with loss. An older adult may use *selection* to reduce demands to better match reduced abilities. She then *optimizes* her ability in meeting demands, and finally uses culture or cultural artifacts to *compensate* for reduced ability.

This process may best be illustrated using a clinical example. A musician, Sally, living in a skilled nursing facility found that her cognitive abilities, especially her memory, were not as high as they were even several years ago. Also, due to vision problems, she could no longer read music. As a result, Sally decided to select her three favorite songs to commit to memory. She realized she was limited in what she could

retain and used selection by having a feasible number of songs to memorize that matched her decreased ability to memorize.

Sally then practiced these three songs to optimize her ability to remember and perform them. Focusing on three songs provided her with ample practice time daily to optimize her ability to remember the songs. She found that practicing daily helped maintain the songs in her memory, which would have been lost otherwise. Sally was able to preserve her piano-playing ability, albeit limited, by optimizing the ability she had remaining.

Unfortunately, two years later Sally began having difficulty remembering even the three songs she had selected. Initially, she became distressed that she would no longer be able to play these songs. However, Sally discovered that if she recorded the first few measures of each song and then played the tape, she was able to remember the entire song. Sally compensated for the fact that she lost the ability to remember how to start a song by using a tape recorder (cultural artifact) to help her remember.

Compensatory strategies more commonly occurring in older adults may include cultural artifacts such as wheelchairs, walkers, canes, pace makers, medications, electric beds, glasses, and hearing aids. SOC is not limited to older adults, and people of all ages employ these strategies when facing changes in functional abilities. Recent research by Livingston et al. (2008) focused on determining if participants with Alzheimer's disease can be successful agers. "Successful ageing[sic] may not only be about escaping illness but also of having a positive attitude towards one's life despite poor health" (p.641). Livingston et al. suggest that people can age even with illness and impaired cognitive faculties in a positive or successful manner. "Older adults commonly stress that social

engagement and positive outlook towards life are more important than physical health status, but these are often not considered at all, or are not viewed as equal facets" (p.641). These findings suggest that mental health and social factors are the greatest predictors of quality of life in persons with Alzheimer's disease. Other research has also shown that self-reported quality of life is not related to cognitive impairment. Experiencing severe cognitive impairment does not doom someone to a poor quality of life (Ready, Ott, Grace, 2004; Vogel, Mortensen, Hasselbalch, Andersen, & Waldemar, 2006).

Research also illustrates the potential for expanding the use of SOC to the cognitive and affective domain, without limiting the idea of subjective well-being to maintaining or compensating for physical deficits. Hilton, et al. (2009) studied successful aging from the perspective of family caregivers. Sixty-five family caregivers identified the following themes as essential to aging successfully—positive attitude, quality of life, independence, good health, staying involved with life, social relationships, cognitive function, self-care, managing change, and financial well-being.

A similar study identifying successful aging characteristics among older adults found that attitude and adaptation were identified by participants as important attributes (Reichstadt, Depp, Plinkas, Folsom, & Jeste, 2007). Guse and Masesar (1999) explored successful aging and quality of life in interviews with 32 residents in a long-term care facility. Participants identified adapting to changes, never giving up, and not letting things get you down as ways that they were able to successfully age. Duay and Bryan (2006) interviewed senior adults about their perceptions of successful aging. They found that engaging with others and the ability to cope with change were identified by the participants as components of successful aging.

These research contributions provide increased understanding of Strawbridge, Wallhagen and Cohen's (2002) finding that older adults' perception of their aging process and quality of life is distinct from impairment. This evidence suggests that something about older adults' own perceptions and experiences is influencing their experience of deficits and impairments as they age. Positive attitude, social relationships and engagement, optimism, flexibility and independence are of particular interest as this narrative of aging concepts moves into positive psychology and positive aging. Engaging another construct of aging, positive aging, will help capture the affective and cognitive strengths that older adults recruit to cope with inevitable decline and expand the use of positive coping strategies. The following section provides a brief background on positive psychology and its influence on positive aging.

Positive Psychology

Eleven years ago the millennial issue of the American Psychologist was devoted to positive psychology. Seligman and Csikszentmihalyi's (2000) seminal article introduced the greater psychological community to the concept of positive psychology. Positive psychology researchers recognized the previous and broader contributions of a strengths-based way of approaching mental health and hoped to provide a canopy (called positive psychology) for a variety of research to reside under (Seligman, Steen, Park, & Peterson, 2005).

Positive psychology derives from a strengths-based approach to mental health that is imbedded in humanism. Although positive psychology likely has other cultural roots, for example, Buddhism, in terms of modern psychology its basis resides in the positive approach of the search for life meaning and of humanistic psychology (Jung, 1933;

Maslow, 1954; Rogers, 1951). Positive psychology provides an alternative to some theories of modern psychology that focus on human deficits and psychopathology. Additionally, positive psychology views people as active decision makers and not passive respondents to stimuli as described in behaviorist theory (Seligman & Csikszentmihalyi, 2000). Sheldon and King (2001) state simply that positive psychology "is the scientific study of ordinary strengths and virtues" (p.216). Seligman and Csikszentmihalyi encourage psychologists to remember that "treatment is not just fixing what is broken; it is nurturing what is best" (p.7).

Seligman and Csikszentmihalyi (2000) identified well-being, self-determination, and optimism as important components of positive psychology. Well-being, often viewed as happiness in a nonacademic context, describes the subjective, cognitive or affective response of an individual to an event, experience, or interaction (Diener, 2000). Research indicates that an event itself does not solely determine the well-being of the individual, but the interpretation of the experience impacts well-being (Diener; Frankl, 1946). In other words, well-being or mental health may be impacted by a person's intrapersonal strengths.

Self-determination or autonomy relates to well-being in United States' culture (Seligman & Csikszentmihalyi, 2000). Choice or decision-making is another way of describing this component. Autonomy in individually-focused societies, as compared to more collectivistic cultures, is accepted as normative. The loss of autonomy especially due to age-related decline can have negative consequences on older adults' mental health in individually focused societies.

However, individuals may interpret an experience, even reduced autonomy, with an optimistic viewpoint. Optimism researchers discovered a mediating effect between challenging experiences and an optimistic attitude (Peterson, 2000; Scheier, Weintraub & Carver, 1986; Seligman, 1998). Psychologists struggle to accurately operationalize optimism due to diverse individual interpretations of what defines a positive future outcome; however, optimism generally encompasses an individual's subjective positive expectation of her or his future in regards to a specific experience (Peterson).

Researchers have been able to operationalize optimism as a psychological trait, not just a person's positive expectation in a certain situation. Dispositional optimism, the ability to expect the best outcome, has been identified as an important psychological trait in mental health outcome (Scheier & Carver, 1992). Scheier and Carver (1985) developed the Life Orientation Test to measure dispositional optimism in individuals. The Life Orientation Test-Revised (LOT-R) was used in the current study to help determine the validity of the Positive Aging Measure, more specifically the validity of the optimism domain. Building optimism is one intervention researchers suggest for increasing positive emotions. Researchers have found that people who are optimists exhibit an active coping style versus the more avoidant style exhibited by less optimistic people (Williamson, 2005). This reappraisal coping has been found to be more effective at recovering from loss than avoidance coping (Nolen-Hoeksema & Davis, 2005).

Optimism generally is adaptive; however, taken to an extreme, optimism has maladaptive impacts. When individuals adopt an optimistic response that provides an avoidant coping response, rather than an acceptance coping response and acknowledgment of sadness and fear, negative impacts have been found to arise as a

result (Dunning, Heath, & Suls, 2004; Oittingen, 1996). Optimism as a form of acceptance coping and self-determination rather than avoidance remains a critical point of positive psychology and consequently positive aging (Peterson, 2000).

Psychology and psychologists are at a genesis of understanding human thriving (Sheldon & King, 2001). Human thriving can be situated in the context of the lifespan. In fact, Maslow (1954) described positive psychology as a less pathologically-based approach to human development. Further, Williamson (2005) asserted that as people age they may no longer have the control to change new situations or discontinuities, but they can learn to change their emotional response to the discontinuities. This conceptualization of positive psychology intersects with lifespan development and aging as older adults are capable of learning how to effectively respond to discontinuities in their lives.

Positive psychology concepts are infused in the construct of positive aging, especially the idea of building on intrapersonal strengths to increase subjective well-being. Developing positive psychology interventions and developing measures to determine outcomes is a current area of growth in positive psychology (Seligman, Rashid, & Parks, 2006; Seligman, 2011). The constructs of positive aging–optimism, flexibility, mobilizing resources, and decision-making–fit well under the positive psychology canopy. Positive aging, described in the next section, and its focus on strengths continues to help define and build a humanistic and positive view of psychology generally and geropsychology specifically.

Positive Aging

Positive aging shifts conceptually from successful aging, as positive aging is not defined by physical and cognitive requirements (Hill, 2005; 2011). Positive aging instead focuses on developing psychological skills and attitudes in order to help elders age positively even in the presence of typical decline, disability, eventual disease, or death. Positive aging builds on the positive psychology model, nurturing what is best, enhancing subjective well-being, and at the same time furthers the evolution of aging constructs. More specifically, positive aging builds on the successful aging/SOC model of utilizing resources to adapt to the demands of aging by identifying intrapersonal affective and cognitive strengths to adapt to age-related discontinuities. As described below, positive aging broadens the understanding of how elders age.

In his book, *Aging Well*, Vaillant (2002) described aging, based on his longitudinal research, as a combination of good health and a positive mental attitude. Hill (2005) elaborated and expanded on this idea describing positive aging as "how one conceptualizes growing old in the presence or absence of disease, while still experiencing happiness and a positive sense of wellbeing" (p. xii). In fact, growth may occur as a result of losses or when life becomes more challenging (Maslow, 1968).

As previously noted, Strawbridge et al. (2002) found that older persons self-identify as successful agers even when in decline. Additionally, they found that some participants (36.8%) who met Rowe and Kahn's criteria for successful aging reported they were not successful agers. Positive aging allows for these contradictions by taking into account the psychological processes that impact older adults' experience of aging.

Further, Hill (2005) asserted positive aging can help elders embrace aging as part of the lifespan development process.

Aging positively may also add additional years to the human lifespan. Levy, Slade, Kunkel, and Kasl (2002) found that participants in the Ohio Longitudinal Study of Aging and Retirement who had positive self-perceptions of aging lived 7.5 years longer than participants who did not have positive self-perceptions. This result was found after holding variables like age and health constant. It seems that positive self-perceptions have important implications in both younger (Seligman, 2005) and older populations. Positive aging (Hill, 2005) identifies four characteristics– mobilizing resources, optimism, affirmative decision-making, flexibility–that help maintain a positive view of aging regardless of decline or loss. Each characteristic will be explained in turn.

Mobilizing Resources

Hill (2011) described mobilizing resources as "recruiting latent potentiality" (p.5). This refers to recruitment of external as well as internal resources. Latent resources may not be needed until a new demand or discontinuity occurs. For example, an older person who has been physically active her entire life may have undeveloped, internal resources. In other words, she may not be able to play tennis any longer, but she may be able to appreciate rolling through the park in her wheelchair. Older adults faced with immobility may no longer be able to visit with long established social circles. Mobilizing resources to continue to have social support may have to include visitors coming to the older adult or establishing technological compensation and connecting via the internet. Ultimately, the limits of aging may require mobilizing internal resources and adapting skills of mindfulness, reminiscence or self-reflection.

Social support and the ability to mobilize resources impact subjective well-being (Rowe & Kahn, 1998; Seligman, Parks, & Steen, 2004). Engagement with others affects both quality and length of life. Established social support changes across the lifespan due to the inevitable loss of friends and family. Research on heterosexual widowers demonstrates that they are especially impacted by the loss of a partner, and the resultant loss of support and emotional resources has negative effects on both physical health and longevity of life (Rowe & Kahn, 1998).

Social support has been described as a widening and less intimate series of circles, and Antonucci and Akiyama (1987) describe these circles as a social convoy that can persevere across the life span. Social support can provide meaning, relationships, and resilience in order to help a person to age positively. Someone may not be able to actively meet everyday demands, but he or she may be able to recruit latent resources through friendships and family relationships. Additionally, research has found that actual social support may not be necessary for providing beneficial psychological impact; just the perception that social support exists has positive effects (Williamson, 2005). This finding suggests that the intrapersonal process of assessing social support is highly relevant.

Mobilizing resources builds on Baltes' (1990) idea that culture can overcome the biological impact of aging up to a certain point. The need for culture, or more specifically for cultural compensation, increases as people age (Baltes, 1997). Culture and cultural artifacts, like wheelchairs, are able to compensate for some biological loss, but there is also an "age related decrease in efficiency of culture" (p. 368) and decline is an inevitable loss, according to Baltes. Positive aging characteristics are adaptive in dealing with this decline.

Optimism

According to Hill (2005), optimism, like in positive psychology, is an important principle of positive aging. People often describe certain ages as far better than other ages—"my 30s are so much better than my 20s." This has been found to be true for old age as well; many older adults find old age to be satisfying (Hill, 2008; Vaillant, 2005). People in retirement may view old age as more satisfying than having to go to work on a daily basis. Even people experiencing one of the four Ds– dysfunction, disability, dependency, death– may embrace aging if they are able to view it with optimism. For example, Mr. B. from the Harris (2008) study found that he grew closer to his children as he became dependent on them for some of his care. Mr. B. could view his dependency as a loss of independence, but saw it as a gain of closeness with his family and a manifestation of positive aging. The ability to positively reframe and accept challenging circumstances has been found in other studies as well (Williamson, 2005).

The death of friends or relatives, with whom a strong emotional connection exists, is a common discontinuity related to aging. The Stanford Bereavement Project has studied large numbers of grieving participants and found several common growth factors among participants: growth in character, gain in perspective, and strengthening of relationships (Nolen-Hoeksema & Davis, 2005). The predictor of this growth was dispositional optimism, or optimism based on working through loss and growing as a consequence (see literature on post-traumatic growth; Mols et al., 2009; Tedeschi & Calhoun, 1996) rather than avoidant optimism or positive thinking (e.g., "everything in life is for the best").

Additionally, optimism researchers discovered that optimism can be learned and is not solely a personality trait (Seligman, 2011). Massimini and Delle Fave (2000) asserted that humans adapt to systems and cultures by self-determination and choice in response to the environment. In other words, we are able to evolve internally in response to cultural and systemic demands. Positive aging provides a framework for developing internal responses, like optimism, to meet the demands of aging.

Affirmative Decision Making

Affirmative decisions (Hill, 2008) often are internal choices about how we view ourselves. Affirmative decision making is focused on older persons' self-determination about choices that impact quality of life, not specific to other things such as medical care or cultural values. Hill uses the example of how United States' culture encourages focusing on a youthful appearance to maintain our self-esteem rather than focusing on choices that make us feel good about ourselves. For example, meditation might be an affirmative choice that may do nothing for our looks but may reduce the stress we feel and improve our quality of life.

Older adults are socialized to be focused on choices about physical health. Schwarz (1975) states:

> with respect to long-term institutional settings for the aged, the preoccupation with public health and medical concerns at the expense of psychosocial concerns may ultimately result in the anomaly of institutions which come up to at least the minimum standards set by the various states but which in the end result in neat, clean, orderly, well-run but sterile warehouses for depersonalized and dehumanized ageing. (p.472)

However, an additional focus on choices regarding subjective well-being requires a change in thinking. In other words, elders need to have the opportunity to make

affirmative life choices; good medical care is not enough. Individuals and institutions need to make decisions that are affirmative for aging positively.

As older adults face other discontinuities of aging, they frequently encounter decision choice-points. Often, choices are required in old age that are adaptive to decline and different than the choices made earlier in the lifespan. For example, older adults who bicycled to maintain physical health and now face balance problems may have to choose a different physical activity or risk serious injury. Older adults who are able to make these decisions are considered to be aging positively. Such decisions may be difficult in terms of self-perception or in terms or successful aging self-efficacy.

Living in a skilled nursing facility does not preclude an older adult from being a positive ager or making affirmative decisions. However, some autonomy and decision-making ability may be necessary within the system. An example of unnecessary loss of decision-making as described by Hill (2005) occurred when a skilled nursing facility decided to institute a care policy where all residents were fitted with adult diapers. The lack of choice as a result of this decision reduced self-efficacy, well-being, and autonomy among residents and caused a decrease in physical and emotional health. Interventions that provide the opportunity for older adults to make affirmative choices are likely to improve subjective well-being. This type of decision-making may require a certain affective and cognitive flexibility.

Flexibility

Positive agers also possess flexibility (Hill, 2008). This is not physical flexibility, but a mental and emotional flexibility to adapt to discontinuities that occur during the aging process. This flexibility has been found to be an important characteristic in

numerous research studies (Hill, 2005; Rowe & Kahn, 1998). As noted earlier, Reichstadt, Depp, Plinkas, Folsom, & Jeste (2007) and Guse and Masesar (1999) found flexibility to be an important characteristic of people who felt they were aging well. Affective and cognitive flexibility allows older adults to adapt to the myriad of changes encountered in old age. Rigid thought patterns and routines likely inhibit adaptation to changes in environment, physical abilities, and family and social systems (Rowe & Kahn; Schaie, 1990).

Additionally, embracing aging (and even death) as part of the lifespan requires flexibility in thought and emotion not typically embraced in United States' culture. Chodron (2001) aptly describes a common response to aging and discontinuities in the United States:

> We know that all is impermanent; we know that everything wears out. Although we can buy this truth intellectually, emotionally we have a deep-rooted aversion to it. We want permanence; we expect permanence. Our natural tendency is to seek security; we believe we can find it. We experience impermanence at the everyday level of frustration. We use our daily activity as a shield against the fundamental ambiguity of our situation, expending tremendous energy trying to ward off impermanence and death. We don't like it that our bodies change shape. We don't like it that we age. We are afraid of wrinkles and sagging skin. We use health products as if we actually believe that our skin, our hair, our eyes and teeth, might somehow miraculously escape the truth of impermanence. (p.18).

Positive aging addresses the emotional response to discontinuities and our deeply rooted aversion to aging and death.

A participant in a study by Harris (2008) reflects on flexibility in his comment about having Alzheimer's disease. Mr. B. says, "It ain't what happens to you that really matters, it's what you decide to do about it" (p. 50). Mr. B. may have cultivated flexibility across his lifespan and it is now serving him well in addressing a challenging aspect of his aging.

Problem Statement

In summary, conceptualizations of aging continue to evolve as researchers develop further insight into the quantitative and qualitative experience of senescence and age-related decline. This evolution began with an orientation focused on understanding disease in the elderly, pathological aging. This view was limited and typically focused on institutionalized older adults. The desire to understand community-dwelling older adults led to several large, long-term longitudinal studies of more typical older adults and the development of normal aging. This new construct was helpful in increasing the understanding of a more heterogeneous aging population and represented a wider range of older adults. Rowe and Kahn (1987) further delineated the idea of normal aging into usual aging and successful aging in order to discriminate that usual aging was not necessarily normal or typical. Instead, successful aging was a normative possibility. Research and intervention followed at a rapid pace to move older adults towards a model of successful aging. Specific measurement criteria of successful aging was established, which maintained a standard of successful aging that excluded those with disease, disability, or significant decline and impairment. Successful aging had a tremendous impact on academic research and the dominant culture generally by providing a more positive outlook on aging; preventative interventions could delay onset of disease, and not all older adults suffer from limited functioning due to disease. However, Baltes and Baltes (1990), and other researchers, suggested that a large portion of the population are not successful agers, as defined by Rowe and Kahn, and ultimately all older adults face decline or disease. Developing effective coping strategies to deal with decline seemed a clinical necessity. Baltes and Baltes proposed selective optimization with compensation

(SOC) as an affirmative strategy to cope with decline. SOC pushed aging literature farther away from the disease model that focuses on pathology. Further, it fits well within a strengths-based, humanistic framework, and the positive psychology movement was not far behind. Seligman (2000) proposed positive psychology as an overarching construct with a focus on strengths and virtues to enhance life rather than "fix" deficits.

Positive aging (Hill, 2005) evolved out of the progression of aging constructs as well as the influence of positive psychology. Positive psychology interventions, like gratitude journaling (Emmons & McCullough, 2003), fit well within the positive aging framework. Positive aging captures a more heterogeneous aging population as it includes the possibility of all older adults aging positively, even those with limitations and impairment caused by disease and disability. Given the fact that adults are living longer and have increased access to information, resources, and support to maintain a quality of life that may include living with age-related disease, positive aging is an increasingly relevant construct for understanding the aging process.

Assessing positive aging would allow researchers and practitioners to accurately capture the presence of positive aging characteristics in older adults and help understand their experiences of the aging process. However, currently, no single measure exists that specifically assesses the four domains of positive aging: flexibility, optimism, mobilizing resources, and affirmative decision-making. As prior research suggests that older adults' perceptions are relevant to how older adults navigate the aging process, accurately assessing positive aging would help illuminate another essential component of the aging process–older adults' internal, psychological processes related to positive aging constructs and adaptation to decline.

As noted previously, pathological, normal, usual, and successful aging are operationalized constructs that can be assessed with questionnaires that have been developed to assess whether someone is aging in the presence or absence of disease or impaired ability of daily living functions (Rowe & Kahn, 1987; Strawbridge, Wallhagen & Cohen 2002). The primary goal of this study was to develop and provide validity evidence for a measure of positive aging which identifies people who exhibit characteristics of positive aging. An assessment that can identify positive aging characteristics and can provide a continuous variable measure of each domain has great potential value for research and clinical use. For example, changes in overall positive aging or in specific domains of positive aging could be assessed using a measure of positive aging after a particular mental health intervention or well-being program.

Researchers can use a measure of positive aging to further understand how flexibility, optimism, mobilizing resources, and affirmative decision-making impact psychosocial responses and adaptation to aging and decline among older adults. Clinicians can use the measure to assess for strengths and to understand the impact of specific interventions on accessing strengths and help them provide support that enhances cognitive and affective coping even in the face of decline. For example, The Positive Aging Measure will assess for optimism. If a client scores low in this domain, the client's therapist might implement a gratitude journaling intervention in order to enhance latent optimism traits within the client (Hill, 2011).

Laidlaw et al. (2006) suggested that self-report measures allow for developing constructs and an understanding of aging from "the only section of society who have the most intimate knowledge of adaptation to the ageing[sic] process" (p. 367). An

underlying assumption in the development and psychometric evaluation of the PAM is that elders are the experts about their own experience and that their self-report is vital in identifying the psychological processes of positive aging. In other words, the target population for this study has experienced aging and possesses the knowledge base to report their physical, emotional, and behavioral experience in the later stages of the lifespan. This research, using older adults, will address the problem of the absence of a measure of positive aging by developing a measure and testing for validity and reliability. The following research questions were used to guide this research.

Research Questions

This research addressed the following questions to assess for validity and reliability evidence of the Positive Aging Measure: Is the Positive Aging Measure reliable? Is the Positive Aging Measure valid? Do PAM scores correlate with self-reported physical health? Do PAM scores correlate with self-reported use of mental health care? Do PAM scores correlate with the demographic variables of gender, ethnicity, age, or education? Do PAM scores correlate with the Positive Aging Question? Do PAM scores correlate with self-reports of successful aging?

CHAPTER II

METHOD

Participants

Participants for the validity and internal consistency components of this study were recruited online from various organizations whose members consist of the targeted population ages 55 years and older; for example, members of an American Association of Retired Persons (AARP) state affiliate. Participants for the test-retest reliability component of this study were recruited in person and from various organizations with older members, including residents of a retirement community. Volunteering for this component of the study involved attending an in-person meeting where a "paper and pencil" test was administered. Recruits for this test-retest component of the study were provided with an additional incentive to participate by having the option to enter into a drawing for six $25 gift certificates if they completed the first and follow-up surveys. Participants were primarily female, white and highly educated (see Table 1).

Of the 175 persons who volunteered for the validity portion of this study and who started the online survey process, 13 did not complete four or more of the survey items. Responses of these 13 were not included in the study analyses. The final sample upon which the analyses were based consisted of 162 persons. Of the 162 participants, 23 participants were missing scores for up to four items, and these missing data were replaced by the mean of the other participants' answers for those questions.

Table 1

Demographics

	Validity sample (n = 162)	Test-retest sample (n = 122)
Age mean (*SD*)	68.6 (7.6)	65.1 (8.2)
	%	%
Race/Ethnicity		
Caucasian	94.2	97.2
Latina/o	1.2	0.7
American Indian	1.2	0.0
Other	2.3	0.7
African American	0.6	1.4
Multiracial	0.6	0.0
Gender		
Female	76.0	71.2
Male	24.0	28.8
Education		
Master's	40.1	41.7
Bachelor's	29.7	29.5
Doctoral	8.7	13.6
Some College	7.6	2.3
Professional	5.2	5.3
High School	4.7	1.5
Associate's	4.1	6.1
Household Income		
80,000–99,000	18.7	18.9
60,000–79,000	17.1	31.1
100,000–119,000	16.3	4.5
59,000 or less	15.7	25.8
120,000–149,000	13.9	3.8
200,000 or greater	9.0	2.3
150,000–199,000	8.4	13.6

Of the separate sample that was gathered in-person for the test-retest data, 190 participants completed the first test of the test-retest study. Of those 190 participants who completed the first test, 57 did not complete the retest. One participant left more than four items blank and his/her response was not included. After excluding these participants, the resulting sample was n = 132 for the test-retest portion of the study. Six participants left three or fewer items blank and the sample means were used as a replacement value for these items.

Procedure

As described above, the participants in the validity sample completed assessments and demographic information online requiring approximately 20 minutes or less. Participants in the test-retest sample completed the first administration of the PAM in person, returning it immediately to the administrator along with the demographic information. Completion of these items required approximately 5 minutes or less. Participants were instructed to complete the retest survey in three days.

Development of the Positive Aging Measure

Given that the purpose of this study was to develop an instrument to assess the positive aging construct including its four characteristics (Hill, 2005), the following process was undertaken in the development of this measure (see Table 2 that outlines the steps involved in PAM development). The Positive Aging Measure (PAM) consists of four domains: flexibility, optimism, mobilizing resources, and affirmative decision making. Fifteen items per domain were initially generated by the researcher (author of the

Table 2

Procedure for Development of the PAM

Step	Procedure
1	Initial item generation by dissertation author
2	Review of items with positive aging expert (Hill, 2005)
3	Reduced and revised items based on outcome from step 2
4	Reviewed items with university gerontological research team
5	Reduced and revised items based on research team feedback
6	Quantitative survey with university research team
7	Reduced and revised items based on survey results from university research team
8	Review of items by corporate skilled nursing facility research team
9	Reduced and revised items based on item sort and qualitative feedback by corporate research team
10	Administered pilot measure to ten older adults and collected feedback on clarity and ease of use
11	Revised items based on feedback from older adults
12	Collected data on 162 validity study participants and 132 test-retest study participants
13	Analyzed data including exploratory factor analysis
14	Reduced and revised items based on results from data analysis
15	Confirmatory factor analysis
16	Finalized items of the PAM

dissertation) by consulting the extant published literature to create items that were descriptive of the types of behaviors and attitudes that characterize each of the aforementioned positive aging domains. After generating these items, each item was further refined in consultation with Dr. Robert Hill, the developer of the positive aging construct (Hill, 2005). Dr. Hill and I developed a general working definition for each of the four characteristics and then the items were discussed as to the match of each item with the specific domain. Based on this collaborative process, some of the 15 initially generated items for each domain (or 60 items total) were eliminated and other items were refined to correspond with the general construct.

As noted in Table 2, two phases of expert panel review were used to enhance the validity of the measure. The first phase entailed discussing the remaining 50 items with a university geropsychology research team. The research team reviewed the content validity of the items and assessed for clarity of the items. After this initial feedback from these researchers, further refinement was made to the items in order to better assess for the domains and provide language clarity in the wording of the items. The research team was consulted again and asked to rate each item on its domain representation. These items were rated by these experts on a scale of 1 to 5 on how well the items represented each domain of positive aging. A score of 1 in answer to "How well does this represent this domain?" would be equivalent to *Not Well* whereas a score of 5 would be equivalent to *Very Well.* These data were then analyzed to further refine the items that would be used on the pilot Positive Aging Measure. The items with high means and low standard deviations were retained, as these items were identified as representing the domain *Very Well*. These experts helped provide additional content validity for the PAM. The second phase of expert panel review entailed analysis by a research team in the private sector who engaged in research to improve care in skilled nursing facilities. Specifically, this group consisted of the Director of Wellness Programs, Director of Wellness Strategies, and a Wellness Program Specialist for a corporation with multiple skilled nursing facilities in several states. Their academic qualifications included a PhD in applied social psychology and master's degrees in health education, exercise science, and exercise physiology. Additionally, one of the members of the panel is a Fellow in the Association for Worksite Health Promotion. This panel provided a list sort of the items into the four positive aging domains. Items that were not unanimously sorted by the panel into the

domain previously designated for that item were eliminated. Additionally, these experts provided qualitative feedback on the content validity and clarity of the wording of each of the target items. Items were then revised or removed based on this feedback.

Finally, the pilot measure was given to ten older adults and feedback was solicited. Question clarity, ease of reading and understanding the format were assessed. Based on feedback, changes were made to font size and numbering system.

At the end of this process, the 35 items that remained were selected for the pilot PAM (see Appendix A). After data were collected, item analysis and exploratory factor analysis were performed to determine how well the items loaded onto the conceptual domains of positive aging (flexibility, optimism, mobilizing resources, and affirmative decision-making). Items were removed that did not load as well onto the respective domains or that were less able to capture variability in the sample. This process yielded a 12-item Positive Aging Measure (three items per positive aging characteristic).

A confirmatory factor analysis of the 12-item PAM was then employed using the independent sample of newly collected volunteers (n = 132) for the test-retest portion of this study. This confirmatory factor analysis resulted in the loading of these 12 items onto four constructs interpreted as the four domains of positive aging. The processes used in this study to measure reliability and validity, and a more detailed description of factor analysis are discussed below.

Internal Consistency

Typically, questions assessing a particular construct will be highly correlated. However, when measuring a broad construct such as personality or intelligence, it may be desirable to have a lower correlation among questions in order to assess for the breadth of

the construct. After data collection was completed, internal reliability was measured. Cronbach's alpha was computed for the overall PAM as well as for each subscale: Flexibility, Optimism, Mobilizing Resources, Decision-Making.

Test-retest Reliability

Test-retest reliability was assessed by administering the measure on two separate occasions. This measurement helped assess whether the instrument obtained similar data on different administrations from the same participant. Ideally, the resultant correlation between administrations would be high.

The initial administration was given to 190 in-person recruits (as described above, the final test-retest sample was 132 participants). Participants were asked to complete the next administration in three days. This length of time was selected as long enough to "minimize memory, practice, and learning effects yet on the other hand not be so long as to allow maturational developments or historical changes to affect subjects' true scores" (Raykov & Marcoulides, 2011, p. 148). If the measure is reliably measuring positive aging as a construct, it is expected that individual scores will be highly correlated between the initial and the follow-up administration.

Convergent Validity

As noted above, validity was assessed online with a sample of n = 162. Convergent validity measures the correlation between two measures of a construct or of two similar constructs. The Meaning in Life Questionnaire (MLQ), the Life Orientation Test-Revised (LOT-R), the Cognitive Flexibility Scale, the Decision Making Questionnaire, and the Multidimensional Scale of Perceived Social Support provided

convergent validity estimates. (These instruments and their psychometric properties are described in more detail below.) Convergent validity required comparing existing reliable and valid measures with the proposed measure, The Positive Aging Measure. It was expected that an existing valid measure of a construct would correlate with a new measure of a similar construct. The Cognitive Flexibility Scale was predicted to be highly correlated with the flexibility domain in the Positive Aging Measure. The LOT-R was predicted to correlate with the optimism domain, while the domains of mobilizing resources and decision-making were predicted to correlate with the Multidimensional Scale of Perceived Social Support and the Decision Making Questionnaire, respectively. Raykov and Marcoulides (2011) recommend a sample size of greater than 100 participants for validity studies, indicating the sampling for this study was adequate.

Discriminant Validity

Discriminant validity was assessed using the Successful Aging Assessment (SAA). The correlation between the PAM and the SAA should be relatively low in magnitude. Successful agers are likely to report high levels of positive aging; however, as in the Strawbridge (2002) study, it was expected that some of the successful agers would not score high on the PAM. Additionally, as in Strawbridge's study, many Positive Agers would likely not be identified by the SAA as successful agers.

Discriminant validity was also assessed by correlating participant age with PAM scores. Age should not influence PAM scores; in other words, a 65-year-old and a 95-year-old could both have high scores on the PAM. A low correlation with age was expected for the overall measure, as well as with each subdomain.

Instruments

The Positive Aging Measure (PAM), as described above, in addition to the following instruments–the Meaning in Life Questionnaire (MLQ), the Life Orientation Test Revised (LOT-R), the Cognitive Flexibility Scale (CFS), the Decision Making Questionnaire DMQ, the Multidimensional Scale of Perceived Social Support (MSPSS), the Successful Aging Assessment (SAA), and a demographic questionnaire–comprised the survey packet described earlier that was administered to participants. What follows are brief summaries of the measures and their psychometric properties, excluding the positive aging measure described above. Descriptive statistics from the demographic survey are also provided below.

Meaning in Life Questionnaire

The Meaning in Life Questionnaire (MLQ; see Appendix B) is a valid and reliable instrument which assesses for the presence and search for meaning in people's lives. This measure was expected to be convergent with the overall construct of the PAM. The MLQ was found to have good internal consistency reliability for its two domains of Presence (of meaning) and Search (for meaning). Presence had an alpha of .82 and Search had an alpha of .87, as well as acceptable test-retest reliability of .70 and .73, respectively (Steger et al., 2006). This measure was predicted to provide a good overall convergent validity for the PAM, as the characteristics of positive aging are highly related to the construct of life meaning (Hill, 2005; Krause, 2007; Takkinen & Ruoppila, 2001). The MLQ is available in the public domain.

Life Orientation Test-Revised

The Life Orientation Test-Revised (LOT-R; Scheier et al., 1994) is in the public domain and available for use without permission. The measure has six items (and four "filler" questions) that measure a person's outlook on, or optimism about, life. Respondents have five possible answers ranging from *I agree a lot* to *I disagree a lot*. The following is an example of an LOT-R item: "Overall, I expect more good things to happen to me than bad" (see Appendix C). Researchers have reported the LOT-R to have an internal consistency reliability of .76 and a 13-week test-retest reliability of .72 (Terrill et al., 2002; Williamson, 2005). Additionally, Herzberg et al. (2006) found strong predictive validity for the LOT-R and measures of depression.

Cognitive Flexibility Scale

The CFS incorporates items that measure awareness, willingness, and self-efficacy for cognitive flexibility (see Appendix D). Martin and Anderson (1998) found the Cognitive Flexibility Scale (CFS) to be reliable with a test-retest reliability of .83. Additionally, strong validity evidence was found in numerous research studies (Martin & Anderson; Martin & Rubin, 1995).

Decision Making Questionnaire

The Decision Making Questionnaire (DMQ) has demonstrated an internal consistency of .67 to .77 (Bouckenooghe, 2007), and Mann et al. (1997) found the instrument to be valid. The DMQ contains 21 items that measure decision making. The measure uses a 6-point Likert-type scale ranging from 1 (never) to 6 (always) to assess respondent rating of each item (see Appendix E). This measure is in the public domain.

Multidimensional Scale of Perceived Social Support

Zimet et al. (1988) reported internal consistency reliability of subscales ranging from .85 to .91 and an overall alpha of .88 for the Multidimensional Scale of Perceived Social Support (see Appendix F). The MSPSS assesses for social support using subscales assessing relationships with family, friends, and significant other. Test-retest reliability was .88 overall. Construct validity was demonstrated by a strong inverse correlation between depression and social support. This assessment contains twelve items rated on a 7-point Likert-type scale ranging from 1 (very strongly disagree) to 7 (very strongly agree) to assess respondent rating of each item. An example of an item from the family subscale is: *My family really tries to help me*. This measure is in the public domain.

Successful Aging Assessment

I developed a questionnaire employing the Strawbridge (2002) concepts of successful aging. The reason for generating this instrument was to assess if participants were endorsing component domains of successful aging as defined by Rowe and Kahn (1987). Specifically, disease and physical health, activities of daily living, engagement in life, mobility, and health habits were assessed. Following are examples of questions and responses in their respective order: *Please mark any of the following diseases you have. __Heart Disease; Please mark any activities that you can't perform for yourself. __Bathing; Please mark any that apply. __I currently work for pay; Please mark any that apply. __I can walk ¼ mile; Please mark any that apply. __I smoke* (for the complete measure, see Appendix G). This measure produced a dichotomous score indicating that the person was "not a successful ager (0), or was engaging in successful

aging (1). Thus, through this score participants were categorized as either an unsuccessful (0) or successful (1) ager.

Demographic Survey

Demographic characteristics were obtained through a brief questionnaire that assessed age, education, ethnicity, general physical and mental health, and previous mental health care use (see Appendix H). These demographic data provided a snapshot of the overall sample as well as allowed calculating statistical correlations necessary to address relevant hypotheses.

The Positive Aging Question was also incorporated into the demographic survey. The Positive Aging Question is a single, separate statement that assessed self-reported positive aging. Participants responded to the statement "I am aging positively" on a 5-point Likert-type scale ranging from 1 indicating *Not at all like me* to 5 indicating *A lot like me*. This statement helped to determine how self-report of positive aging compared with the construct-based measures of both successful aging and positive aging. A similar statement, *I am aging successfully*, was used by Strawbridge et al. (2002). Similarly, Moore et al. (2007) used the following question to assess successful aging: *Where do you rate yourself in terms of successful aging*? (1 = Least Successful, to 10=Most Successful).

Statistical Procedures For PAM Psychometric Properties

Item Analysis

Individual items of the PAM were analyzed for variability. Item means and standard deviations provide information on whether the item is useful in gathering data that helps discriminate between respondents. An item that is answered with no variation

does not help to better understand a particular domain (Crocker & Algina, 2006). Items with higher means and lower variances in comparison to other items for each domain were removed from the final version of the PAM. In addition, skewness was assessed to determine the normality of the sample. Skewness measures symmetry, and a relatively normal sample will have a value close to zero for this statistic.

Factor Analysis

A factor structure represents the underlying meaning of a set of variables (Crocker & Algina, 2006). Factor analysis is the process of identifying this structure. In this research, factor analysis was used to demonstrate that the assessment items loaded onto their respective subdomains or factors. For example, the assessment questions developed for the subdomain *optimism* were expected to highly load onto one factor.

Mathematically, $p_{ij}=a_i1a_j2+a_i2a_j2\ldots+a_ipa_jp$ represents factor loadings "where p_{ij} is the correlation between scores on instruments i and j on factor 1, and a_i2 and a_j2 are the loadings of instruments i and j on factor 2" (Crocker & Algina, p. 289). Ideally, the factors identified accounted for the highest optimal proportion of variance in the overall factor structure; that is, the inclusion of additional factors would not appreciably improve the proportion of overall item variance explained.

Prior to the exploratory factor analysis, two statistical tests to assess for sphericity and sampling adequacy were also performed. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity were both calculated. The KMO should be greater than .60 if factors are the cause of correlation, and Bartlett's Test should have a statistically significant Chi Square value (Tabachnick & Fidell, 2001). Both these statistical tests calculate the appropriateness of the sample for factor analysis

by determining correlation among variables and whether the strength of the relationship among the variables merits further analysis.

To understand which questions mapped onto the four positive aging subdomains assessed on the PAM, an exploratory factor analysis was conducted of all 35 items on the pilot of the Positive Aging Measure (see Appendix A) using the validity study sample (*n* = 162). Factor loadings identified items that mapped highly onto factors and represented unique contributions to each factor. Items that did not load well or were not unique were removed.

After items were removed, a confirmatory factor analysis was performed using the sample (*n* = 132) from the test-retest portion of this research. An independent sample is necessary to calculate a confirmatory factor analysis; otherwise, the "confirmation" would only be a reiteration of the exploratory factor analysis (Crocker & Algina, 2006; Worthington & Whitaker, 2006). Recommendations for the number of participants per factor required to perform confirmatory factor analysis range from 5 to 20 per factor, which would be 20-80 participants for the PAM (Gorsuch, 1983; Thompson, 2004; Worthington & Whitaker). The sample used exceeds the upper range of the recommendation for a factor model of this size. Factors with an eigenvalue of less than 1 were not considered, as these factors are likely to be unstable (Kaiser, 1958). Based on this analysis, a final draft of the Positive Aging Measure was created (see Appendix I).

CHAPTER III

RESULTS

The results section describes the analysis of the essential process steps in PAM item development, including: (1) an item analysis, (2) exploratory factor analysis, and (3) a confirmatory factor analysis. The final section of the Results describes analyses for each of the seven study questions as previously outlined.

Item Analysis

Table 3 shows the mean, standard deviation, and skewness for each of the 35 items of the Positive Aging Measure (PAM). Recall that this analysis was conducted on the previously described validity sample of 162 persons. The item analysis was used to identify items for the final version of the PAM. Items with lower means ($m < 4.5$) and higher standard deviations ($sd > .70$) were identified as potential items for the final version of the PAM, depending on the items' individual factor loadings.

As noted in Table 3, scores for the 35 PAM items trended towards a negatively skewed distribution, indicating that respondents reported more affirmatively in endorsing the contents of each item (e.g., *A Lot Like Me*). There were no individual items among the final 12 selected with errant score distributions that would warrant removal from the PAM.

Table 3

Item Descriptives

Item	Mean	SD	Skew
Total PAM score	150.3	12.9	-0.53
Flexibility			
If my favorite food is not available at a restaurant I am able to find other foods I enjoy.	4.75	.706	-3.48
I am able to adjust to changes in my life.	4.60	.708	-1.81
I like to experience new things.	4.43	.840	-1.77
If I had trouble sleeping for a couple of nights, I wouldn't worry about it.	4.08	1.15	-1.18
I don't like to leave the comfort of my own home.	4.02	1.12	-0.96
When I can't remember something, it's OK to let it go.	3.90	1.12	-0.98
I'm reluctant to try something new.	3.87	1.30	-0.84
I don't like change.	3.58	1.06	-0.25
I am set in my ways.	3.44	1.04	-0.29
Optimism			
My life usually goes well for me.	4.66	.642	-2.12
Even when things are going poorly, I have hope that they will get better.	4.59	.655	-1.89
Even when I'm discouraged, I can find things to be happy about.	4.50	.603	-0.78
I believe good things will happen to me.	4.39	.798	-1.41
Other people have told me I'm a positive person	4.33	.899	-1.07
I am more of a glass half full person.	4.31	.962	-0.99
I am a glass half empty person.	4.31	.907	-1.09
I feel hopeful even when my health is poor.	4.22	.885	-0.78
Mobilizing Resources			
I know at least one person who cares about me or I have a pet that cares about me.	4.88	.456	-5.25
If I had trouble getting in and out of the bath/shower I would have a handrail installed.	4.70	.660	-2.60
I can depend on at least one family member for emotional support.	4.62	.773	-2.40
I use resources available to me.	4.61	.652	-1.58
I am part of a community of people.	4.51	.766	-1.74
To avoid forgetting, I'll make a grocery list.	4.46	1.01	-2.09
If I couldn't get my mail for some reason, I would ask a neighbor or friend to get it for me.	4.44	.841	-1.81
I have no friends to talk to.	4.42	1.00	-1.84

Table 3 continued

Item	Mean	SD	Skew
Someone is available to help me with tasks I cannot do myself.	4.13	1.12	-1.44
I feel OK asking for help.	4.02	1.04	-1.16
I don't like to ask for help.	2.73	1.30	-0.43
Decision Making			
Overall, in my life I have made more positive decisions than negative decisions.	4.70	.558	-1.91
I usually make good decisions.	4.60	.615	-1.27
Making occasional mistakes has helped me to make better choices.	4.57	.588	-1.19
Decisions I make usually have a positive impact on my life.	4.51	.671	-1.04
I've learned how to be good at making choices.	4.44	.705	-1.09
Other people think I make good decisions.	4.35	.775	-0.69
I enjoy making decisions.	4.23	.830	-0.92

Note: Maximum score for each item is 5.0. Maximum score overall is 175.0

Figure 1 is a histogram of the distribution of combined items across all domains, or the total PAM score. As noted, the total PAM score conforms approximately to a normal distribution (*m* = 150.3, *sd* =12.9) with a slight negative skew of Υ = -0.52. Appendix J lists the score distributions for each of the 12 items comprising the final version of the PAM.

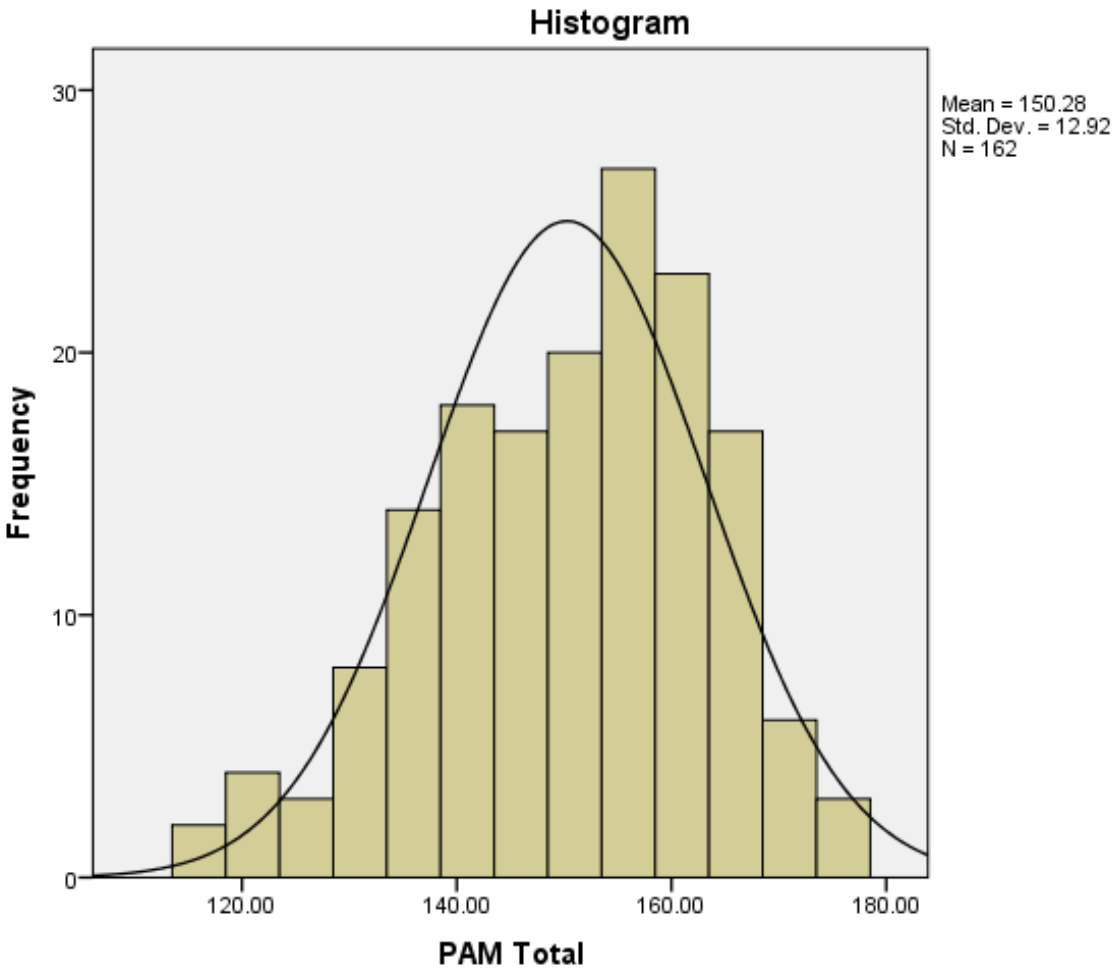

Figure 1 *Distribution of PAM Total scores*

Exploratory Factor Analysis

Prior to computing the exploratory factor analysis, two statistical tests to assess for sphericity and sampling adequacy were also performed. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .796, within the acceptable range of greater than .60 (Tabachnick & Fidell, 2001), which indicates that factors are the cause of the correlations conducted in the factor analysis. Additionally, a chi square of 2069.02, $p<.0001$, for Bartlett's test of sphericity indicated that the sample was normally distributed and was within the acceptable range to warrant a factor analysis.

The exploratory factor analysis analyzed all 35 items on the pilot of the Positive Aging Measure (see Appendix A) to determine factor loadings. The results of this analysis yielded four factors as follows: Factor 1, labeled Decision-Making, was characterized by the items in Appendix J with factor loadings above .716. One item, *I enjoy making decisions*, had a negligibly lower mean and slightly more variance; however, its factor loading of .639 was lower than the other items and it was not included in this domain.

Factor 2, labeled Flexibility, consisted of three PAM items with factor loadings above .681(see Appendix J). These three items also had the lowest means, most variance, and lowest skewness for the flexibility items.

Factor 3 was labeled Optimism. The three items selected for the final PAM in this domain all had factor loadings above .544 (see Appendix J).

Mobilizing Resources was identified as the fourth factor. Although several items in this category had more variability, the selected items had significantly higher factor

loadings on Factor 4. The three items selected all had factor loadings above .678 (see Appendix J).

Table 4 shows the overall factor loadings of the 12 items that were selected for the final version of the PAM. These loadings are from the exploratory factor analysis of all 35 items of the pilot PAM. The substantially high loading of items onto each factor provides strong justification for the four PAM characteristics.

Table 4

Exploratory Factor Analysis

Abbreviated Items	Factor Loadings			
	1	2	3	4
Factor 1: Decision Making				
Item 1. I've learned how to be good at making choices.	**.800**	.125	.144	.053
Item 2. Decisions I make usually have a positive impact my life.	**.727**	.018	.263	-.002
Item 3. Other people think that I make good decisions.	**.717**	.114	.033	.224
Factor 2: Flexibility				
Item 1. I don't like change.	.123	**.850**	.113	.035
Item 2. I am set in my ways.	.072	**.772**	.124	.091
Item 3. I am reluctant to try something new.	.109	**.682**	-.026	.144
Factor 3: Optimism				
Item 1. I am a glass half empty person.	.253	.194	**.753**	.138
Item 2. I am more of a glass half full person.	.296	-.005	**.749**	-.072
Item 3. Other people have told me I am a positive person.	.325	.084	**.545**	.285
Factor 4: Mobilizing Resources				
Item 1. If I had trouble getting in the shower I would install a handrail.	.039	.136	.072	**.759**
Item 2. To avoid forgetting, I'll make a grocery list.	.032	.030	.163	**.733**
Item 3. If I couldn't get my mail, I would ask a friend to get it for me.	.165	-.095	.136	**.680**

Confirmatory Factor Analysis

A confirmatory factor analysis was used to determine how well the 12 PAM items identified in the exploratory factor analysis loaded onto the four factors. The sample that was used to conduct the confirmatory factor analysis was the test-retest reliability sample (n = 132) noted previously. The Kaiser-Meyer-Olkin (KMO) for this sample was .690 well above the suggested metric. Additionally, a chi square of 563.69, p<.0001, was found when computing Bartlett's test of sphericity suggesting that the sample was sufficiently normally distributed to warrant a factor analysis.

The four factor loadings and uniqueness statistics are listed for each PAM item in Table 5. This table displays the 12 PAM items across the four factors of decision making, optimism, flexibility, and mobilizing resources. *Decision-making* mapped onto Factor 1, *optimism* onto Factor 2, *flexibility* onto Factor 3, and *mobilizing resources* onto Factor 4. Uniqueness statistics measure the communality of an item. Communality among variables means that individual items are likely to load onto a specific factor. A low uniqueness score is suggestive of a better fit on the confirmatory factor structure. This four factor model accounted for a significant portion of the explanatory variance, 69.04% total, with decision making accounting for 24.66%, optimism for 19.97%, flexibility for 14.84%, and mobilizing resources for 9.57%.

Research Questions

Is the Positive Aging Measure Reliable?

PAM external and internal reliability were assessed. Test-retest reliability was evaluated by administering the PAM to participants who were part of the second sample (n = 132) that were retested after 3 days. Total score (as well as scores for each of the

Table 5

Confirmatory Factor Analysis

Abbreviated Items	Factor Loadings	Uniqueness
Factor 1: Decision Making		
I've learned how to be good at making choices.	.862	.188
Decisions I make usually have a positive impact my life.	.800	.276
Other people think that I make good decisions.	.791	.304
Factor 2: Optimism		
I am a glass half empty person.	.837	.281
I am more of a glass half full person.	.798	.223
Other people have told me I am a positive person.	.755	.323
Factor 3: Flexibility		
I am reluctant to try something new.	.836	.270
I am set in my ways.	.728	.360
I don't like change.	.722	.393
Factor 4: Mobilizing Resources		
If I had trouble getting in the shower I would install a handrail.	.830	.254
If I couldn't get my mail, I would ask a friend to get it for me.	.692	.398
To avoid forgetting, I'll make a grocery list.	.604	.445

four PAM domains) from the two administrations are summarized in Table 6.

Table 7 is a correlation matrix that includes PAM total score and the four domain subscores for the initial and retest interval. The test-retest reliability for the PAM total score was high, r = .92. Test-retest reliability calculated for each domain was also high: flexibility, r = .87; optimism, r = .80; mobilizing resources, r = .82; decision making, r = .85.

Internal reliability or item consistency was assessed and Cronbach's alpha statistic was computed for the PAM and for each of the four domains: Total, α=.87; Flexibility, α=.64; Optimism, α=.80; Mobilizing Resources, α=.72; and Decision Making, α=.87. These results are presented in Table 8.

Is the Positive Aging Measure Valid?

Each PAM domain was correlated with a validated measure related specifically to that domain to assess for convergent validity. Significant correlations were found between all of the domains and the measures used to test for convergent validity. Specifically, significant correlations between the flexibility domain and the Cognitive Flexibility Scale, r = .31, p<.0001, between the optimism domain and the LOT-R, r = .70, p<.0001, between the mobilizing resources domain and the MSPSS, r = .50, p<.0001, and between the decision making domain and the DMQ, r = .31, p<.0001, were found. Overall, the PAM was positively correlated with the MLQ, r = .41, p< .0001. These correlations indicate that participants responded in a similar manner to items on different measures of related constructs. For example, a participant's response on the PAM optimism domain correlated positively with her answers about optimism on the LOT-R,

Table 6

Test-retest Descriptive Statistics

	Time 1		Time 2	
	M	*SD*	*M*	*SD*
PAM Total	147.47	12.29	149.07	12.58
Flexibility	36.34	4.49	37.00	4.48
Optimism	33.17	4.15	33.59	4.70
MR	48.34	4.15	48.57	4.05
DM	29.62	3.75	29.91	3.59

Note: MR=mobilizing resources; DM=decision making; Maximum scores: PAM Total–175; Flexibility–45; Optimism–40; MR–55; DM–35.

Table 7

Test-retest Correlation Matrix

Variable	PAM	PAM2	Flex	Flex2	Op	Op2	MR	MR2	DM	DM2
PAM	1	.92**	.80**	.80**	.67**	.66**	.72**	.58**	.78**	.66**
PAM2		1	.73**	.85**	.61**	.77**	.66**	.69**	.73**	.67**
Flex			1	.87**	.38**	.48**	.41**	.31**	.56**	.51**
Flex2				1	.46**	.57**	.42**	.38**	.61**	.55**
Op					1	.80**	.27**	.19*	.33**	.32**
Op2						1	.41**	.39**	.36**	.23**
MR							1	.82**	.47**	.32**
MR2								1	.42**	.31**
DM									1	.85**
DM2										1

Note: **p<.01, *p<.05. Flex=flexibility domain; Op=optimism domain; MR=mobilizing resources domain; DM=decision-making domain; domains with a "2" identify retest data.

Table 8

Internal Consistency

Domain	Cronbach's alpha
Overall PAM	.87
Decision Making	.87
Optimism	.80
Mobilizing Resources	.72
Flexibility	.64

r = .70, indicating that the optimism domain of the PAM and the LOT-R were both endorsed in the positive direction.

Two measures of discriminant validity were assessed to determine whether an alternative explanation may account for the variance accounted for by the PAM. The correlation between the PAM and SAA was not significant, r = .11, p< .152. Additionally, the correlation between the PAM and age was not significant, r = -.03, p< .662. The lack of a significant correlation between the PAM and the SAA, and the PAM and participants' age supports the discriminant validity of the PAM. If the PAM was assessing for age or successful aging, a significant correlation would have resulted. The results of convergent and discriminant validity are listed in Table 9.

Did PAM Scores Correlate With Self-reported Physical Health?

As noted above, and in Table 10, correlations were generated to determine if statistically significant relationships exist between total PAM scores and Successful Aging Assessment scores. No significant relationship was found between PAM and SAA, r = .11, p< .152.

However, a significant positive correlation was found between PAM and reported cancer, r = .21, p<.009 (see Table 10). A negative correlation, which approached statistical significance, was found between PAM and heart disease, r = -.15, p< .052. Other correlations between the PAM and specific health conditions were not statistically significant.

Table 9

Validity Correlation Matrix

Variable	PAM	MLQ	Flex	CFS	Op	LOT	MR	MSP	DM	DMQ	SAA	Age
PAM	1	.41**	.69**	.56**	.81**	.66**	.71**	.40**	.77**	.35**	.11	-.03
MLQ		1	.10	.30**	.45**	.46**	.26**	.19*	.45**	.27**	.15	-.15
Flex			1	.31**	.43**	.32**	.25**	.10	.36**	.14	.02	-.07
CFS				1	.46**	.49**	.34**	.23**	.60**	.20*	-.09	.23**
Op					1	.70**	.37**	.25**	.67**	.41**	.12	-.05
LOT						1	.41**	.36**	.56**	.37**	.06	-.06
MR							1	.50**	.37**	.20**	.09	.07
MSP								1	.30**	.26**	.03	-.17*
DM									1	.31**	.13	-.08
DMQ										1	.12	-.03
SAA											1	.12
Age												1

Note: **p<.0001; *p<.05 PAM=Positive aging measure total; Flex=flexibility domain; CFS=Cognitive Flexibility Scale; Op=optimism domain; LOT=Life Orientation Test Revised; MR=mobilizing resources domain; MSP= Multi-dimensional Scale of Perceived Social Support; DM=decision-making domain; DMQ= Decision Making Questionnaire; SAA= Successful Aging Assessment

Table 10

Health Correlation Matrix

Variable	PAM	SAA	Cancer	Heart Disease
PAM	1	.11	.21**	-.15
SAA		1	-.19*	-.20*
Cancer			1	.02
Heart Disease				1

Note: $^{**}p<.01$, $^{*}p<.05$

Did PAM Correlate with Mental Health Care Use?

PAM scores did not significantly correlate with self-reported mental health care usage, as measured by the question *In my lifetime, I have <u>never</u> spoken with a psychologist, psychiatrist, counselor, therapist, or other mental health care professional*, $r = .13$, $p<.098$. PAM scores did not significantly correlate with self-reported mental health care with a primary care physician, *I have spoken with my family doctor/general practitioner about mental health concerns*, $r = .02$, $p <.760$.

Did PAM Correlate with Demographics?

Dummy variables were created which described race as White or Other Races and gender as female or male. Education was measured as years of education and age was also measured in years. No significant correlation was found between PAM total and gender, $r = .09$, $p< .263$, age, $r = -.03$, $p< .662$, or education, $r = .0001$, $p < .999$. A significant correlation was found between PAM and ethnic identity, $r = .16$, $p < .043$. See Table 11 for correlation matrix.

Table 11

Demographic Correlation Matrix

Variable	PAM	Gender	Age	Edu	Ethnicity
PAM	1	.09	-.03	.00	.16*
Gender		1	.10	-.18*	.04
Age			1	-.07	.05
Edu				1	-.21**
Ethnicity					1

Note: $p<.05$*, $p<.01$**; Edu–Years of Education, PAM–Positive Aging Measure Total

Did PAM Correlate with The Positive Aging Question?

The Positive Aging Question (PAQ) asked participants to rate themselves on a Likert-type scale if they were positive agers: *I am aging positively.* A significant correlation was found between PAM scores and this face valid positive aging question, $r = .312$, $p<.0001$.

Did PAM Correlate with The Successful Aging Assessment?

As noted above, the correlation between PAM scores and SAA scores was not significant, $r = .114$, $p< .152$ (see Table 10).

CHAPTER IV

DISCUSSION

As described previously, aging constructs have evolved as aging demographics have changed across time, as gerontological research has advanced and as the intersection between research and United States' culture has impacted the zeitgeist of aging. Positive aging (Hill, 2005) developed out of influences from positive psychology and out of influences from evolving constructs of aging in geropsychology. As constructs emerge, transformation from theory to clinical and research utility requires operationalization in a measurable form. Hill (2005) operationalized positive aging as having four characteristics–optimism, flexibility, mobilizing resources and affirmative decision-making. The construct of positive aging is set apart from prior conceptualizations of aging by focusing on affective and cognitive traits and skills that can be learned to help cope with inevitable age-related decline. The development of a measure of positive aging allows for the assessment of positive aging both in research and clinical settings, which expands the possibility of clinical research for an aging population. The purpose of this research was to develop a Positive Aging Measure (PAM) and to assess the validity and reliability of this measure so that it could be appropriately utilized in clinical research on older adults. Specific questions were addressed to determine the validity and reliability of the measure and these are discussed below.

Is The Positive Aging Measure Reliable?

Test-retest reliability indicates a measure's consistency across time and administrations. Reliable measures of stable constructs will have similar results on different administrations (Raykov & Marcoulides, 2011), so higher reliability coefficients indicate more stable constructs. The PAM exhibited excellent test-retest reliability, r = .92. This score suggests that the PAM is very reliable in assessing participants' scores in two different administrations.

Internal consistency was also assessed. Good internal consistency was found for the overall construct as well as for each of the four domains: Overall, α = .87; Decision Making, α = .87; Optimism, α = .80; Mobilizing Resources, α = .72; and Flexibility, α= .64. Using Ponterrotto and Ruckdeshel's (2007) reliability matrix, the overall measure and the decision making subscale were in the *excellent* range, the optimism subscale was in the *good* range, the mobilizing resources subscale was in the *good* range, and the flexibility subscale was below the *fair* range.

The internal reliability of the flexibility scale was lower; however, this reliability may be appropriate for the broadness of scope of this subdomain of positive aging, cognitive flexibility (Woltz, 2009). Cognitive flexibility is a broad construct as compared to a more specific and narrow construct like extraversion, where one might expect a measure to have greater internal reliability.

Extending this logic to the other subdomains, the PAM measures mobilizing resources and optimism as broader constructs as their internal reliability statistics were in the good range. Given that the measurement of optimism could include both situational and trait-based optimism, the internal reliability of the optimism subdomain is

appropriate. Similarly, mobilizing resources may be considered a slightly broader construct captured through a range of items because of the varying definitions of social resources and social support as well as inclusion in this construct of the action of mobilization, so the good level of internal reliability is appropriate. The subscale for decision making is a somewhat narrower construct, as compared to the other subdomains. The narrower construct of decision making is easier to capture psychometrically, so this higher level of internal reliability is fitting.

Is The Positive Aging Measure Valid?

Developing the Positive Aging Measure required multiple steps as outlined in Table 2 to develop content validity. This process included input and feedback from the researcher of this study, the developer of the positive aging construct (Hill, 2005), academic and industry researchers, and older adults. This expert-based process was extensive and rigorous, helped develop potentially valid items to be as precise as possible in mapping onto the construct of Positive Aging, and to be assessed through statistical analysis.

After collecting data, an item analysis, exploratory factor analysis, and a confirmatory factor analysis were performed as described in Chapters II and III. The results of these analyses provide preliminary evidence supporting the validity of the PAM. For example, the high loadings of the items onto the four factors indicated that item variability can be explained by these four factors. Further, the confirmatory factor analysis reaffirmed the high loadings of the 12 items selected for the final version of the PAM on a separate, independent sample. This evidence provides support for the validity of the PAM.

Additionally, previously validated measures of similar constructs in the extant literature provide additional validity evidence for a newly developed measure by assessing correlations between the measures. As Zumbo (2007) notes, validity is not dichotomous concept; it is assessed on a continuum. A measure is not valid or invalid, but it is valid to a certain degree and the degree of validity is related to what can be interpreted from the measure. The PAM was administered to participants along with multiple measures to assess validity overall as well as specific to each subscale. The PAM was correlated with the Meaning in Life Questionnaire, which provides an overall assessment of life satisfaction (Steger et al., 2006). This construct is slightly different than positive aging; however it provides a measure that will help assess the overall convergent validity. A significant correlation was found between the MLQ and the PAM, $r = .41$, $p < .0001$. This statistical evidence indicates that overall the PAM has significant convergent validity with the MLQ. The MLQ is a similar overall measure to the PAM, and provides a good assessment of convergent validity. In addition to the strength of the theory of Positive Aging, the statistically significant convergent validity with the MLQ moves the PAM further along the validity continuum (Zumbo, 2007).

Each subscale was also assessed for convergent validity. All subscales significantly correlated, $p<.0001$, with the coinciding measure used to assess validity. These subdomain correlations provide further validity evidence for the measure overall and that each of the four characteristics was assessed in a valid way.

Additional validity evidence was gathered for the PAM by assessing correlations with discriminant measures. Discriminant measures included the Successful Aging Assessment and participants' ages. The successful aging assessment was a dichotomous

measure based on the definition of successful aging (Rowe & Kahn, 1987), which includes physical health and activities of daily living (see Appendix H). If the Positive Aging Measure assessed for physical health and the ability to continue with activities of daily living, and not a separate construct–*positive aging,* then one would expect the PAM and the SAA scores to correlate. However, if the SAA were discriminant with the PAM then one would expect the correlation not to be significant. This study found a non-significant correlation between the PAM and the SAA, $r = .11$, $p < .152$. This can be interpreted to mean that the PAM is not measuring the construct of successful aging. This finding helps validate the PAM as a measure of the Positive Aging construct that is not just based on physical health.

Age is another construct not expected to correlate with the PAM. If the PAM were just measuring age or declining health with age, a strong correlation would be expected. This study found that there was not a significant correlation between PAM scores and age, $r = -.03$, $p < .662$. This indicates that the PAM is not just a measure of age and measures adaptive characteristics of Positive aging that do not covary with age. Positive Aging characteristics were identified across all ages in the sample. This result illuminates the usefulness of the positive aging construct across heterogeneity of age in this sample, ranging from age 55 to 94. No significant correlation was found. The discriminant validity scores demonstrate that the PAM is not actually measuring another construct, and provide further support, in addition to the convergent validity found in this research, for the validity of the PAM.

Did PAM Scores Correlate with Self-reported Physical Health?

This question is also related to the understanding of discriminant validity for the PAM. The expectation was that PAM scores would not be correlated with an overall measure of successful aging including health, and this finding was true in this study. No significant relationship was found between PAM and SAA, $r = .11$, $p < .152$. This finding is especially meaningful because positive aging, in contrast to successful aging, is assumed to be capable of capturing a more heterogeneous elder population, including elders experiencing physical impairment, and the PAM is consistent with that assumption.

As the data was analyzed in more depth, two findings are worth noting. A significant positive correlation was found between PAM and reported cancer, $r = .21$, $p < .009$. No specific details about types of cancer, progression of disease, or recovery are known about this correlation, so further speculation about this correlation is not possible but may indicate the usefulness of the PAM in helping capture this data. Much of the effect may be related to the type of cancer, where a participant was in terms of treatment or remission, or other factors. Additionally, posttraumatic growth may explain this correlation and this may be an important area of further research as noted below (Mols et al., 2009; Tedeschi & Calhoun, 1996).

Another result was that a negative correlation approaching statistical significance was found between PAM and heart disease, $r = -.15$, $p < .052$. Again, since no details were assessed about this disease, it is unclear what this negative correlation might indicate, but it may merit further research to follow up on this connection. It may be that

certain health conditions could mediate an elder person's psychological responses to the aging process.

Did PAM Correlate with Mental Health Care Use?

One might expect PAM scores to correlate with mental health care use across the life span; however, in this sample PAM scores were not significantly related to reported mental health care usage. PAM scores did not significantly correlate with talking with a mental health care professional, $r = .13$, $p < .098$, or with talking with a family physician about mental health issues, $r = .02$, $p < .760$. There is a moderate correlation between PAM scores and talking with a mental health professional, and this correlation may be greater in younger cohorts who have a decreased stigma and increased usage associated with mental health care (Gallagher, 2010). Additionally, this question, *In my lifetime, I have <u>never</u> spoken with a psychologist, psychiatrist, counselor, therapist, or other mental health care professional,* was phrased in the negative, and it may be clearer to ask this question in the affirmative in future research. Positive agers, especially in this cohort, may use other coping skills when dealing with distress and mental health concerns that were not assessed for. This may also be useful information for future research.

Did PAM Scores Correlate with Demographics?

It was expected that positive aging could occur across all people in all demographic factors. This was true in this sample for all factors except ethnicity. No significant correlation was found between PAM total and gender, age, or years of education. A significant correlation was found between PAM and ethnic/racial identity, $r = .16$, $p < .043$. Higher scores on the PAM were correlated with participants who identified as White. Due to the small sample of participants who identified as a race other

than White, this correlation should be viewed with some caution; however, there may be a connection between experiences of race, oppression, or other factors across the lifespan and positive aging. Other research on people of Color and mental health suggests that experiencing racism has a negative impact on overall well-being (U.S. Department of Health and Human Services, 2001). This may be another important area of research in addition to validating the PAM with people of various races and ethnicities.

Did PAM Correlate with The Positive Aging Question?

The Positive Aging Question (PAQ) asked participants to rate themselves on a Likert type scale if they were positive agers: *I am aging positively.* A significant correlation was found between PAM scores and the PAQ, $r = .312$, $p<.0001$. Participants who identified as positive agers in this study scored higher on the PAM than participants who did not identify as strongly as positive agers. It is noteworthy to recall the results of Strawbridge, Wallhagen and Cohen's (2002) research. They found that there was a significant negative correlation between self-reported successful aging and participants identified by Rowe & Kahn's (1987) criteria for successful aging. Positive agers, as measured by the PAM and as a self-reported response to the PAQ, *I am aging positively*, readily identified with a positive view of aging. This correlation between the operationalized definition of positive aging and the results of participants' self-constructed view of positive aging supports the usefulness of the PAM in capturing this construct with older adults.

Did PAM Correlate with The Successful Aging Assessment?

The correlation between PAM scores and the SAA was not significant, $r = .11$, $p < .152$. This finding is important both in terms of discriminant validity as discussed previously, but also in the implication that *positive aging* and *successful aging* are viewed differently by participants, and the operationalized definitions are perceived as different constructs. The PAM measured something different than what is defined as Successful Aging. Even though some positive agers are successful agers, many more are not. Only 31.5% of participants considered themselves to be successful agers, yet the mean score for the positive aging question (PAQ) was 4.62 out of a possible 5. The PAM scores ranged from 116 to 175 (out of a possible 175) with M=150.32. This is an item average of 4.3. This supports the idea that although participants may not be successful agers, they still identify as positive agers. Discriminant validity provided important information for the construct validity of the PAM, but more importantly it reinforces the theoretical differences between positive aging and successful aging. This is important information in thinking about how we view aging as part of lifespan development. That is, elders may be experiencing impairment and disease (as measured by criteria for successful aging), but they may still self-endorse as positive agers who are able to effectively manage the aging process. This suggests that a strength-based approach to aging, as conceptualized in positive aging, is relevant for the elder population.

Limitations

The major limitation to this study was the homogeneity of the sample group which limits generalizability to other demographic groups. The sample was highly

educated, White, and reported high levels of household income. Although there was no correlation between PAM scores and SES or education, extending the range of the sample would allow for greater generalizability (Woltz, 2009). Additionally, as the sample was limited to the United States, the PAM may not reflect cross-cultural meaning on aging or positive aging.

Most of the participation for this research was computer-based. There may be some self-selection of the participant sample due to some people who do not feel comfortable using computer technology and access to computer technology being possible related to higher socio-economic status in an older population. Another limitation is the use of self-report to assess positive aging. Other report, by friends or partners, to use in comparison with self-report would be highly useful to assess the accuracy of self-perception of positive aging.

Clinical Implications

The positive aging measure, in addition to being an aid for aging research, can be used to help clinicians assess and identify positive aging factors that may impact client mental health in a variety of settings. Assessing personality dimensions in order to identify who may be at risk for difficulty with coping with changing environments and abilities is an important function of mental health care (Williamson, 2005, p. 682). For the construct of positive aging specifically, Hill (2005) asserted the clinical relevance of positive aging. Using the PAM helps bridge the gap between positive aging as a construct and its clinical applications.

For example, if a client is experiencing the discontinuity of moving to a skilled nursing facility, and scores low on the PAM flexibility scale, the clinician may be able to

work with the client on ways to adjust to her new environment. The clinician and client might work on letting go of the client's desire to control her environment. The client likely had more control of her environment previously, and she may instead need to focus on experiencing each moment for what it may offer. The clinician might also empower the client to make small changes that she does still have control over.

As another example, the clinician and client may also work together using a gratitude intervention (Hill, 2011). Although the client is experiencing a discontinuity with her move to a skilled nursing facility, there are likely many events, people, or functions that she is grateful to be experiencing. Identifying areas for which the client is grateful, may be helpful to her in adapting to this major lifespan adjustment.

Assisted living and skilled nursing facilities may be able to use the PAM with their residents to help assess how their residents are faring in terms of mental health in a more general way as opposed to or in addition to a more specific assessment of impairment like the Mini Mental Status Exam (MMSE). This may be especially useful to measure how changes in policy and procedure or a particular intervention are impacting residents. For instance, a pre- and postassessment after implementing a Wii intervention program for residents could measure the impact on participants' report of positive aging and more specific characteristics, like feelings of optimism. Additionally, a training program to educate residents about resources available to them and how best to utilize those resources could be assessed with the PAM especially the mobilizing resources subscale. The overall PAM score is likely to increase as well, since increases in one subscale are correlated with increases in the overall PAM score.

Private mental health practitioners can also use the PAM in working with older adults to identify both strengths and areas of growth for clients. Older adults may have highly developed problem-solving skills which no longer serve them in dealing with unsolvable problems. Helping older clients switch from a problem-focused orientation to an emotion-focused orientation may be an important task for clinician and client (Williamson, 2005). Research indicates that optimists are more capable of using emotion-focused coping strategies (Williamson). On the PAM, a client may score high on optimism and this strength can help the client overcome current unsolvable problems. The client may not be feeling hopeful currently, but knowing that generally he is optimistic can help the client negotiate the current situation with increased self-efficacy. The Stanford Bereavement Project found that participants did not benefit from being told the benefits of loss (e.g., the deceased person is no longer suffering), but they did benefit from the acknowledgment of their resiliency, compassion, and other strengths (Nolen-Hoeksema & Davis, 2005). Thus, assessing positive aging and the optimism subscale have the potential to identify and implement appropriate clinical interventions about the specific parts of elders' difficulties that can be positively impacted.

As positive aging is relevant for elders who are not significantly impaired or living with disease, considering non-clinical applications of PAM is also important. Older adults who are not accessing professional mental health services may benefit from a psycho-educational website where they could access the PAM and receive a PAM score and information to enhance their life experience. For example, an older adult who scores low on the PAM could get information on the site about how to work on some of the subdomains in order to learn to better cope with aging issues that are having a negative

impact. This broader, accessible psychoeducational intervention has the potential to reshape elders' experience of aging and facilitate elders' empowerment because of the strength-based approach.

Future Research

Several areas of future research may provide valuable information to the study of geropsychology generally and positive aging research specifically. One area would be to develop other validity studies of the PAM with more ethnically diverse groups. For example, would the measure be valid and reliable with older adults in the African-American community or Latina/o community? This study found a correlation between being White and positive aging, however, the number of diverse participants was small. Sampling a more diverse group of older adults would help to understand what connections may exist between race, culture and ethnicity and positive aging (Kwong-Liem, Gong, & Maestas, 2001).

Research that could identify *clinically* significant changes to PAM scores would be helpful in identifying change in clinical interventions, as has been established with other outcome measures (Hansen & Lambert, 1996). This research may initially need to establish some continuum of positive aging based on norming scores. Some caution is warranted here in order to not establish a construct of negative aging.

Assessing test-retest reliability over longer periods of time would be beneficial to a better understanding of positive aging and the PAM. The current study found that PAM is a relatively stable construct over the course of three days. However, longitudinal studies that incorporated the PAM could determine more definitively if PAM is a state associated with environmental or emotional factors, or whether it is a relatively stable

trait across time. Understanding how to impact positive aging factors could be useful in working with adults across the lifespan.

Another fruitful area would be to develop a measure for other countries and cultures. For example, how might positive aging be perceived and assessed in China? There are clear cultural differences between the United States and China, and these differences extend to the perception of aging in the dominant culture and among elders in that culture. In order to understand positive aging in China, a culturally relevant Positive Aging Measure-China would need to be developed initially. This measure could then be used to help understand differences in positive aging between the United States and China. Cross-cultural research helps expand ideas about other possible strategies for managing the aging process and may illuminate certain cultural assumptions that may be relevant in conceptualizing positive aging in the United States. Other measures could obviously be developed for many unique cultures and China is just one example.

A variety of geropsychology research can utilize the Positive Aging Measure as an instrument for assessing elder's strengths. For example, research on the effect of adult attachment style could be undertaken using the PAM and a measure of attachment. This research could help understand the impact of attachment style on the positive aging process and how elders' strengths are related to their attachment style.

Given the eventual inevitability of disease and impairment for older adults, continuing geropsychology research about the physical health realities of older adults is important. However, expanding that research to include how positive aging is related to elder's experiences of decline is crucial. For example, further research of interest might be in understanding the correlation found in this sample between positive aging and

cancer. It would be useful to have data about what types of cancer, whether a participant was in remission or ongoing treatment, how many years have they managed the cancer, and what type of treatment they had. Understanding survival rates and how they relate to positive aging attributes would also be of value. It is possible the correlation found is this study is related to posttraumatic growth as found in other studies on the positive effects of cancer survival and the resulting internal growth from the traumatic experience (Mols, Vingerhoets, Coeberghac, & van de Poll-Franse, 2009; Tedeschi & Calhoun, 1996). This study found that disease-related geropsychology research could benefit from taking into consideration the impact of positive aging.

Positive aging advances geropsychology's theoretical framework for understanding aging. The Positive Aging Measure may be useful in further understanding positive aging as its psychometric properties suggest that it could be used in clinical and research settings. Aging constructs are likely to continue to evolve as aging demographics continue to change and attitudes towards aging shift in the dominant culture. Hopefully, the Positive Aging Measure can help to support this evolution.

APPENDIX A

POSITIVE AGING MEASURE--PILOT

Flexibility **Not at all like me** **A lot like me**

1 2 3 4 5

1. I am able to adjust to changes in my life.
2. I don't like to leave the comfort of my own home.
3. If my favorite food is not available at a restaurant or grocery store, I am able to find other foods I enjoy.
4. I'm reluctant to try something new.
5. I don't like change.
6. I am set in my ways.
7. I like to experience new things.
8. If I had trouble sleeping for a couple of nights, I wouldn't worry about it.
9. When I can't remember something, it's OK to let it go.

Optimism

10. I believe good things will happen to me.
11. I am more of a glass half full person.
12. Even when things are going poorly, I have hope that they will get better.
13. Other people have told me I'm a positive person
14. I feel hopeful even when my health is poor.
15. I am a glass half empty person.
16. My life usually goes well for me.
17. Even when I'm discouraged, I can find things to be happy about.

Mobilizing Resources

18. I can depend on at least one family member for emotional support.
19. I have no friends to talk to.
20. I am part of a community of people.

21. I know at least one person who cares about me
    or I have a pet that cares about me.
22. I use resources available to me.
23. I don't like to ask for help.
24. Someone is available to help me with tasks I cannot do myself.
25. I feel OK asking for help.
26. To avoid forgetting, I'll make a grocery list.
27. If I had trouble getting in and out of the bath/shower
    I would have a handrail installed.
28. If I couldn't get my mail for some reason, I would
    Ask a neighbor or friend to get it for me.

Decision Making

29. I usually make good decisions.
30. Overall, in my life I have made more positive
    decisions than negative decisions.
31. I enjoy making decisions.
32. I've learned to be good at making choices.
33. Decisions I make usually have a positive impact
    on my life.
34. Making occasional mistakes has helped me to
    make better choices.
35. Other people think I make good decisions.

APPENDIX B

MEANING IN LIFE QUESTIONNAIRE

Please take a moment to think about what makes your life and existence feel important and significant to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below:

Absolutely Untrue	Mostly Untrue	Somewhat Untrue	Can't Say True or False	Somewhat True	Mostly True	Absolutely True
1	**2**	**3**	**4**	**5**	**6**	**7**

1. I understand my life's meaning.
2. I am looking for something that makes my life feel meaningful.
3. I am always looking to find my life's purpose.
4. My life has a clear sense of purpose.
5. I have a good sense of what makes my life meaningful.
6. I have discovered a satisfying life purpose.
7. I am always searching for something that makes my life feel significant.
8. I am seeking a purpose or mission for my life.
9. My life has no clear purpose.
10. I am searching for meaning in my life.

APPENDIX C

LIFE ORIENTATION TEST-REVISED

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

A = I agree a lot, B = I agree a little, C = I neither agree nor disagree, D = I DISagree a little, E = I DISagree a lot

1. In uncertain times, I usually expect the best.

2. It's easy for me to relax.

3. If something can go wrong for me, it will.

4. I'm always optimistic about my future.

5. I enjoy my friends a lot.

6. It's important for me to keep busy.

7. I hardly ever expect things to go my way.

8. I don't get upset too easily.

9. I rarely count on good things happening to me.

10. Overall, I expect more good things to happen to me than bad.

APPENDIX D

THE COGNITIVE FLEXIBILITY SCALE

The following statements deal with your beliefs and feelings about your own behavior. Read each statement and respond by identifying what best represents your agreement with each statement.

Strongly Agree	Agree	Slightly Agree	Slightly Disagree	Disagree	Strongly Disagree
6	5	4	3	2	1

____ 1. I can communicate an idea in many different ways.

____ 2. I avoid new and unusual situations.

____ 3. I feel like I never get to make decisions.

____ 4. In any given situation, I am able to act appropriately.

____ 5. I can find workable solutions to seemingly unsolvable problems.

____ 6. I seldom have choices to choose from when deciding how to behave.

____ 7. I am willing to work at creative solutions to problems.

____ 8. My behavior is a result of conscious decisions that I make.

____ 9. I have many possible ways of behaving in any given situation.

____10. I have difficulty using my knowledge on a given topic in real life situations.

____11. I am willing to listen and consider alternatives for handling a problem.

____ 12. I have the self-confidence necessary to try different ways of behavior.

APPENDIX E

DECISION MAKING QUESTIONNAIRE

Please show how often each of the following applies to you by circling the number that you think applies. 1=very infrequently or never, 2=infrequently, 3=quite infrequently, 4=quite frequently, 5=frequently, 6=very frequently or always.

	Very infrequently or never					Very Frequently or always
	1	2	3	4	5	6
1. Do you enjoy making decisions?						
2. Do you rely on 'gut feelings' when making decisions?						
3. Do you like to consult with others?						
4. Do you stick by your decisions come what may?						
5. When you find one option that will just about do, do you leave it at that?						
6. Do you remain calm when you have to make decisions very quickly?						
7. Do you feel in control of things?						
8. How often are your decision governed by your ideals regardless of practical difficulties?						
9. Do you make decisions without considering all of the implications?						
10. Do you change your mind about things?						
11. Do you take the safe option if there is one?						
12. Do you prefer to avoid making decisions if you can?						
13. Do you plan well ahead?						
14. When making decisions do you find yourself favouring first one option then another?						
15. Do you carry on looking for something better even if you have found a course of action that is just about OK?						

	Very infrequently or never					Very Frequently or always
	1	2	3	4	5	6
16. Do you find it difficult to think clearly when you have to decide something in a hurry?						
17. Do you make up your own mind about things regardless of what others think?						
18. Do you avoid taking advice over decisions?						
19. Do you work out all the pros and cons before making a decision?						
20. In your decision making how often are practicalities more important than principles?						
21. Is your decision making a deliberate logical process?						

APPENDIX F

MULTIDIMENSIONAL SCALE OF PERCEIVED SOCIAL SUPPORT

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree** Circle the "2" if you **Strongly Disagree**
Circle the "3" if you **Mildly Disagree** Circle the "4" if you are **Neutral**
Circle the "5" if you **Mildly Agree** Circle the "6" if you **Strongly Agree**
Circle the "7" if you **Very Strongly Agree**

1.	There is a special person who is around when I am in need.	1	2	3	4	5	6	7
2.	There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7
3.	My family really tries to help me.	1	2	3	4	5	6	7
4.	I get the emotional help and support I need from my family.	1	2	3	4	5	6	7
5.	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7
6.	My friends really try to help me.	1	2	3	4	5	6	7
7.	I can count on my friends when things go wrong.	1	2	3	4	5	6	7
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7

10.	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7
11.	My family is willing to help me make decisions.	1	2	3	4	5	6	7
12.	I can talk about my problems with my friends.	1	2	3	4	5	6	7

APPENDIX G

SUCCESSFUL AGING ASSESSMENT

1. Please mark any of the following diseases you have:
   __Heart Disease __Stroke __Bronchitis __Diabetes
   __Cancer __Osteoporosis __Emphysema __Asthma

2. Please mark any activities that you can't perform for yourself.
   __Bathing __Dressing __Eating __Using the toilet
   __Getting out of bed __Grooming __Walking across a room

3. Please mark any that apply:
   __I smoke
   __I have hypertension (high blood pressure)
   __I am overweight

4. Please mark any that apply:
   __I can walk ¼ mile
   __I can climb one flight of stairs with out resting
   __I can stand up without fainting or feeling dizzy
   __I can remember where I put something
   __I can find the right word when talking

5. Please mark any that apply:
   __I currently work for pay
   __I care for a child or grandchild
   __I volunteer somewhere
   __I clean my own house

APPENDIX H

DEMOGRAPHIC SURVEY

Q-1 What is your gender (Circle one number)?

1 Female
2 Male

Q-2 What is your age? _____ (Write age)

Q-3 What year were you born? _____(Write year)

Q-4 Which of the following best describes your racial or ethnic identification (Circle all numbers that apply):

1 White/Caucasian/Euro-American
2 Latino/a
3 Asian American
4 Black/African American
5 American Indian
6 Multi-racial
7 Other (Please specify):_____

Q-5 I have completed the following level of formal education:

___ No High School
___ Some High School
___ High School Diploma
___ Some College or Technical School
___ Bachelor's Degree
___ Master's Degree
___ Doctorate Degree

Q-6 I would rate my physical health as:

___Excellent ___Poor
___Good ___Very Poor
___Fair

Q-7 I would rate my mental/emotional health as:

___Excellent
___Good
___Fair
___Poor
___Very Poor

Q-8 In my lifetime, I have never spoken with a psychologist, psychiatrist, counselor, therapist, or other mental health care professional.
___True

___False

Q-9 I have spoken with my family doctor/general practitioner about mental health concerns.

___True

___False

Q-10	*I am aging positively*	*Not at all like me*				*A lot like me*
		1	*2*	*3*	*4*	*5*

APPENDIX I

THE POSITIVE AGING MEASURE

	Not at all like me				A lot like me
	1	**2**	**3**	**4**	**5**
Flexibility					
1. I'm reluctant to try something new.	**1**	**2**	**3**	**4**	**5**
2. I don't like change.	**1**	**2**	**3**	**4**	**5**
3. I'm set in my ways.	**1**	**2**	**3**	**4**	**5**
Optimism					
4. I am more of a glass half full person.	**1**	**2**	**3**	**4**	**5**
5. I am a glass half empty person.	**1**	**2**	**3**	**4**	**5**
6. Other people have told me I'm a positive person.	**1**	**2**	**3**	**4**	**5**
Mobilizing Resources					
7. To avoid forgetting, I'll make a grocery list.	**1**	**2**	**3**	**4**	**5**
8. If I had trouble getting in and out of the bath/shower I would have a handrail installed.	**1**	**2**	**3**	**4**	**5**
9. If I couldn't get my mail for some reason, I would ask a neighbor or friend to get it for me.	**1**	**2**	**3**	**4**	**5**
Decision Making					
10. I've learned how to be good at making choices.	**1**	**2**	**3**	**4**	**5**

11. Decisions I make usually have a positive impact on my life.	**1**	**2**	**3**	**4**	**5**
12. Other people think that I make good decisions.	**1**	**2**	**3**	**4**	**5**

APPENDIX J

ITEM ANALYSIS

Item	Mean	SD	Skew	Factor Loadings
Decision Making				
I've learned how to be good at making choices.	4.44	.705	-1.09	.800
Decisions I make usually have a positive impact on my life.	4.51	.671	-1.04	.727
Other people think I make good decisions.	4.35	.775	-0.69	.717
Flexibility				
I am set in my ways.	3.44	1.04	-0.29	.850
I don't like change.	3.58	1.06	-0.25	.772
I'm reluctant to try something new.	3.87	1.30	-0.84	.682
Optimism				
I am a glass half empty person.	4.31	.907	-1.09	.753
I am more of a glass half full person.	4.31	.962	-0.99	.749
Other people have told me I'm a positive person	4.33	.899	-1.07	.545
Mobilizing Resources				
If I had trouble getting in and out of the bath I would have a handrail installed.	4.70	.660	-2.60	.759
To avoid forgetting, I'll make a grocery list.	4.46	1.01	-2.09	.733
If I couldn't get my mail for some reason, I would ask a neighbor or friend to get it for me.	4.44	.841	-1.81	.679

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